



## Math's Long Term Plan Early Years Foundation Stage

### Early Learning Goals

**By the end of reception children should be able to:**

#### **Number:**

- Have a deep understanding of number to 10; including the composition of each number
- Subitise (recognize quantities without counting the composition of each 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.

#### **Number Patterns**

- Verbally count beyond 20, recognizing patterns of the counting system
- Compare quantities up to 10 in different contexts, recognizing 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

## Progression



### Development Matters 3-4 years:

- **Develop fast recognition of up to 3 objects, without having to count them individually ('subitising'). (M)**
- **Recite numbers past 5. (M)**
- **Say one number for each item in order: 1,2,3,4,5. (M) .**
- **Know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle'). (M)**
- **Show 'finger numbers' up to 5. (M)**
- **Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5. (M)**
- **Experiment with their own symbols and marks as well as numerals. (M)**
- **Solve real world mathematical problems with numbers up to 5. (M)**
- **Compare quantities using language: 'more than', 'fewer than'. (M)**
- **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'. (M)**
- **Understand position through words alone – for example: "The bag is under the table," – with no pointing. (M)**
- **Describe a familiar route. (M)**
- **Discuss routes and locations, using words like 'in front of' and 'behind'. (M)**
- **Make comparisons between objects relating to size, length, weight and capacity. (M)**
- **Select shapes appropriately: flat surfaces for building, a triangular prism for a roof etc. (M)**
- **Combine shapes to make new ones - an arch, a bigger triangle etc. (M)**
- **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. (M)**
- **Extend and create ABAB patterns – stick, leaf, stick, leaf. (M)**
- **Notice and correct an error in a repeating pattern. (M)**
- **Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...' (M)**

### Year 1:

- **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 (fewer), most, least, read and write numbers from 1 to 20 in numerals and words**
- **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**
- **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  $7 = \square - 9$ . Pupils will learn to recognise and name common 2-D and 3-D shapes, including: - 2-D shapes [for example, rectangles (including squares) circles and triangles] - 3-D shapes [for example, cuboids (including cubes), pyramids and spheres].**
- **describe position, direction and movement, including whole, half, quarter and three quarter turns. They will learn to recognise, find and name a half as one of two equal parts of an object, shape or quantity recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.**
- **compare, describe and solve practical problems for: - mass/weight [for example, heavy/light, heavier than, lighter than] capacity and volume [for example, full/empty, more than, less than, half, half full, quarter] measure and begin to record the following: mass/weight, capacity and volume. compare, describe and solve practical problems for: - lengths and heights [for example, long/short, longer/shorter, tall/short, double/half] measure and begin to record the following: lengths and heights**
- **compare, describe and solve practical problems for: time (for example, quicker, slower, earlier, later), measure and begin to record the following: time (hours, minutes, seconds) Sequence events in chronological order using language [for example, 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**
- **recognise and know the value of different denominations of coins and notes.**

Autumn 1	Subitising	Cardinality, ordinality and counting	Composition	Comparison	Patterns & Connections	Shape, Space, Measure and Spatial Reasoning
<p><b>Adult Led Inputs &amp; Enhanced Provision (Play)</b></p>	<p>Children know how to subitise within 3.</p> <p>Children know how to identify sub-groups in larger arrangements</p> <p>Children know how to create their own patterns for numbers within 4</p> <p>Children know how to practise using their fingers to represent quantities which they can subitise</p> <p>Children know how to subitise in a range of contexts, including temporal patterns made by sounds.</p>	<p>Children know how to count in a sequence and relate this to cardinality, seeing that the last number spoken gives the number in the entire set</p> <p>Children know how to count in a sequence, including through rhyme and song</p> <p>Children know how to use 1:1 correspondence, including by coordinating movement and counting</p> <p>Children know that anything can be counted, including actions and sounds</p> <p>Children know a range of strategies which support accurate counting.</p>	<p>Children know that all numbers can be made of 1s</p> <p>Children know how to compose their own collections within 4.</p>	<p>Children know that sets can be compared according to a range of attributes, including by their numerosity</p> <p>Children know and use the language of comparison, including 'more than' and 'fewer than'</p> <p>Children know how to compare sets 'just by looking'</p>	<p>Children know how to 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.</p> <p>Children know how to extend and create ABAB patterns – stick, leaf, stick, leaf.</p> <p>Children know how to correct an error in a repeating pattern.</p>	<p>Children know how to match objects which are the same</p> <p>Children know how to explain when something is the odd one out or the same.</p> <p>Children know and apply language: tall, long, short, big, little, large and small.</p> <p>Children know how to compare and order objects by size.</p> <p>Children know how to copy, continue and create their own repeating patterns. Including shapes, colours, sizes actions and sounds.</p>
<p><b>Daily Routine</b></p>	<ul style="list-style-type: none"> <li>• <b>When tidying up, use number words to indicate given objects, e.g.</b> <i>Please can you pick up those 2 cars and put them away?</i></li> <li>• <b>When lining up for lunch, playtime, etc. change the number of children that you ask for, e.g.</b> <i>Please line up in 2s.</i></li> <li>• <b>When in their environment, encourage the children to use number words and to notice quantities of real-life objects, e.g.</b> 3 bikes in the shed, 2 footballs to put away, 3 apples in the bowl.</li> <li>• <b>Sing counting songs that focus on counting forwards and encourage the children to join in with the actions, e.g.</b> 'Johnny Works With One Hammer'; '1, 2, 3, 4, 5, Once I Caught a Fish Alive'; 'Two Little Dicky Birds Sitting On a Wall'.</li> <li>• <b>Use routines to provide examples of counting in everyday life – for example, by asking the children to collect a given number of pencils and helping them check that you have the right amount.</b></li> <li>• <b>Ask questions that call for counting:</b></li> <li>• <i>How many cups do we need for this table at snack time?'</i></li> <li>• <b>Draw attention to instances where counting would be helpful:</b></li> <li>• <i>How many children can be in the role-play area? Have we got the right amount? Can you show me on your fingers?'</i></li> <li>• <b>When tidying up, set counting challenges, e.g.</b></li> <li>• <i>Who can find 5 blocks and put them away in the bucket?</i></li> <li>• <b>Create marks in the environment for the children to place objects when tidying up. Can they match the objects with the marks? Have they got the right quantity of things?</b></li> <li>• <b>Provide opportunities during transition times for the children to practise subitising, including auditory patterns played on a range of instruments.</b> <i>How many children do we need in our PE groups?</i></li> <li>• <b>Label some pots with non-standard arrangements of dots.</b> <i>How many pencils belong in this pot? How do you know?</i></li> <li>• <b>Things to ask the children:</b></li> <li>• <i>Who has more/fewer toys than [...]?</i></li> <li>• <i>How many children can play in the small world area? Are there more/fewer children than this?</i></li> <li>•</li> </ul>					

Autumn 2	Subitising	Cardinality, ordinality and counting	Composition	Comparison	Shape, Space, Measure and Spatial Reasoning
<p><b>Adult Led Inputs &amp; Enhanced Provision (Play)</b></p>	<p>Children know how to subitise within 5, perceptually and conceptually, depending on the arrangements.</p>	<p>Children know about the cardinality of 5, linking this to dice patterns and 5 fingers on 1 hand</p> <p>Children know how to count beyond 5, recognise numerals, relating to these to quantities they can subitise and count.</p>	<p>Children know the concept of 'wholes' and 'parts' by looking at a range of objects that are composed of parts, some of which can be taken apart and some of which cannot</p> <p>Children know the composition of numbers within 5.</p>	<p>Children know how to compare sets using a variety of strategies, including 'just by looking', by subitising and by matching</p> <p>Children know how to compare sets by matching, seeing that when every object in a set can be matched to one in the other set, they contain the same number and are equal amounts.</p>	<p>Children know how to make comparisons between objects relating to size, length, weight and capacity.</p> <p>Children know how to select shapes appropriately: flat surfaces for building, a triangular prism for a roof etc.</p> <p>Children will know that circles have one curved side and triangles have 3 straight sides.</p> <p>Children will begin to know and use positional language to describe how items are positioned in relation to other items.</p> <p>Children will know that squares and rectangles have 4 straight sides and 4 corners.</p> <p>Children will know and use time language: day, night, morning, afternoon, before, after, today, tomorrow.</p> <p>Children will know how to measure time in simple ways e.g. counting a number of sleeps to an important event or using sand timers to measure duration of events.</p>
<p><b>Daily Routine</b></p>	<ul style="list-style-type: none"> <li>• <b>Ask questions that call for counting, e.g.</b> <i>How many cups do we need for this table at snack time? How many paintbrushes do we need here?</i></li> <li>• <b>Draw attention to instances where counting would be helpful, e.g.</b> <i>How many children can be in the role-play area? Show me on your fingers. Have we got that many?</i></li> <li>• <b>When tidying up, set counting challenges, e.g.</b> <i>Who can find 5 construction blocks and put them in the bucket? Use your fingers to show the quantity required.</i></li> <li>• <b>Model counting to the children, remembering to name what you are counting, e.g.</b> <i>How many children are lining up nicely? 1, 2, 3, 4, 5 [touch the children's heads as you count]; I've noticed 5 children [show the quantity on your fingers] who are being fantastic!</i></li> <li>• <b>When praising the children, ask for a 'High 5'</b></li> <li>• <b>When tidying up, ask the children to ensure that all the parts are collected for given toys or puzzles.</b></li> <li>• <b>Encourage the children to look closely at fruit or vegetables that have been cut up for snack time. Talk about how many parts each fruit could be cut into, and about what parts there are in different fruits (e.g. skin, peel, pips, seeds, juice, flesh, stalk, etc.).</b></li> <li>• <b>Sing rhymes that reference the parts inside things, e.g. 'I'm a Little Teapot', 'One Finger, One Thumb' or 'Head, Shoulders, Knees and Toes'.</b></li> <li>• <b>Share stories that draw attention to parts and wholes, e.g. 'Five Creatures' by Emily Jenkins or 'One is a Snail, Ten is a Crab' by April Pulley Sayre and Jeff Sayre.</b></li> <li>• <b>When lining up or transitioning between activities, encourage the children to carry out actions using 1 or more parts of their bodies.</b> <i>Can you hop on 1 part of your whole body? Can you wave 2 parts of your whole body?</i></li> <li>• <b>When discussing quantities to 10 in class, model and encourage the children to show the amounts on their fingers. Reinforce how they have 5 fingers on 1 hand.</b></li> <li>• <b>When lining up, model counting along the line to check how many children there are.</b></li> <li>• <b>Place representations such as dot patterns on containers to show how many e.g. pencils/scissors need to be tidied away. Putting the number alongside the representation will support the children's developing numeral recognition skills.</b></li> <li>• <b>When warming up in PE, play counting games such as counting with the children as you balance on 1 leg.</b> <i>Can we beat our score?</i></li> <li>• <b>Look for opportunities to count at snack time.</b> <i>How many [...] do we need for snack time? Have we got enough/too many/not enough?</i></li> <li>• <b>Encourage the children to join in with counting their classmates during registration.</b></li> <li>• <b>Ask the children to count in other meaningful contexts, e.g.</b> <i>How many children can join in with this craft activity? How many pairs of scissors do we have on the table?/How many [...] will you need to build [...]? Can you show me on your fingers? Have we got too many/not enough?</i></li> </ul>				

Spring 1	Subitising	Cardinality, ordinality and counting	Composition	Comparison	Shape, Space, Measure and Spatial Reasoning
<p><b>Adult Led Inputs &amp; Enhanced Provision (Play)</b></p>	<p>Children know how to subitise by continuing to explore patterns within 5, including structured and random arrangements</p> <p>Children know a range of patterns made by some numbers greater than 5, including structures patterns in which 5 is a clear part.</p> <p>Children know which patterns show a small group and '1 more'</p> <p>Children know how to match arrangements to finger patterns.</p>	<p>Children know how to verbally counting to 20 and beyond</p> <p>Children know how to count objects, using a range of strategies to develop accuracy</p> <p>Children know how to count using cardinality, including using their fingers to represent quantities between 5 and 10.</p> <p>Children know how to order numbers, linking cardinal and ordinal representations of number.</p>	<p>Children know the composition of 5 and practise recalling 'missing' or 'hidden' parts for 5</p> <p>Children know the composition of 6, linking this to familiar patterns including symmetrical patterns.</p> <p>Children know that numbers within 10 can be composed of '5 and a bit.'</p>	<p>Children know how to compare sets using the language of comparison, and play games which involve comparing sets.</p> <p>Children know how to compare sets by matching, identifying when sets are equal.</p> <p>Children know ways of making unequal sets equal.</p>	<p>Children know position through words alone – for example: "The bag is under the table," – with no pointing.</p> <p>Children know how to describe a familiar route.</p> <p>Children know how to discuss routes and locations, using words like 'in front of' and 'behind'.</p> <p>Children know the language: heavy, heavier than, heaviest, light, lighter than, lightest.</p> <p>Children know how to compare items starting with items which have an obvious difference in weight.</p> <p>Children know the language: full, empty half full, nearly full and nearly empty.</p> <p>Children know the language: tall, thin, narrow, wide and shallow.</p> <p>Children know the mathematical language to describe length and height e.g the tree I stall, then pencil is short.</p> <p>Children know how to order and sequence important times in their day and use language such as now, before, later, soon, after, then and next to describe which events happen.</p> <p>Children know the vocabulary 'yesterday' 'today' and 'tomorrow' to describe when events happen.</p>
<p><b>Daily Routine</b></p>	<ul style="list-style-type: none"> <li>• Use die patterns or dot and numeral cards when asking the children to get into groups, e.g. for PE activities.</li> <li>• Use die patterns or dot and numeral cards to signpost how many children are allowed in each area of the environment.</li> <li>• Provide die pattern arrangements of 5 for the children to place their photo/name on during self-registration activities. <i>How many die arrangements have we filled today? How many are left over?</i></li> <li>• Label pots and containers with different arrangements of 5 dots for the children to use when tidying up toys and equipment.</li> <li>• Look for opportunities – for example, when the children are lining up – to sing songs that feature numbers to 5, e.g. '5 Little Monkeys Jumping on the Bed' or '5 Little Ducks'</li> </ul>				

Spring 2	Subitising	Cardinality, ordinality and counting	Composition	Comparison	Shape, Space, Measure and Spatial Reasoning
<p><b>Adult Led Inputs &amp; Enhanced Provision (Play)</b></p>	<p>Children know what a symmetrical pattern looks like, in which each side is a familiar pattern, linking this to 'doubles'.</p>	<p>Children know how to consolidate their understanding of cardinality, working with larger numbers within 10</p> <p>Children know and become more familiar with the counting pattern beyond 20.</p>	<p>Children know the composition of odd and even numbers, looking at the 'shape' of these numbers</p> <p>Children know how to link even numbers to doubles.</p> <p>Children know the composition of numbers within 10.</p>	<p>Children know how to compare numbers, reasoning about which is more, using both an understanding of the 'howmanyness' of a number, and its position in the number system.</p>	<p>Children know how to select, rotate and manipulate shapes in order to develop spatial reasoning skills.</p> <p>Children know which 3D shapes roll and which shapes stack.</p> <p>Children know some 3D shape names such as: cuboid, cone, pyramid, prism, sphere, cylinder and cube.</p> <p>Children know how to create complex patterns such as: ABB, AAB, AABB, AABBB.</p>
<p><b>Daily Routine</b></p>	<ul style="list-style-type: none"> <li>• <b>When the children are tidying up, ask everyone to pick up 'this many' e.g. toys, construction materials or pieces of paper, etc. Show amounts of 6, 7 or 8 on your fingers using the '5 and a bit' representation.</b></li> <li>• <b>Ask the children to place e.g. their name, a personal tile (e.g. a photo, name plate or picture that the child recognises as theirs) or a counter onto a 10-frame during self-registration activities. Carry out a daily count of how many children are present, asking the children to join in with the count. (You could provide 10-frames coloured in to correspond to the number of children in your class. <i>How many children are absent today? How do you know?</i>)</b></li> <li>• <b>Include counting practice in your daily routines, e.g. How many children have washed their hands/are lining up already? Count with me! Let's count the children that are sitting beautifully. How many books still need to be put away?</b></li> <li>• <b>Ask the children to collect equipment (e.g. pencils, cups, paintbrushes) for group activities. How many [...] do we need? Show me on your fingers. Have we got enough.</b></li> <li>• <b>During transition times, play a reverse game of 'Bunny ears' by calling out a number to 7. Can the children use both of THEIR hands to make their own 'bunny ears' that sum to 7?</b></li> </ul>				

Summer 1	Subitising	Cardinality, ordinality and counting	Composition	Comparison	Shape, Space, Measure and Spatial Reasoning
<p><b>Adult Led Inputs &amp; Enhanced Provision (Play)</b></p>	<p>Children know familiar subitising arrangements, including those which expose '1 more' or 'doubles' patterns using subitising skills to enable them to identify when patterns show the same number but in a different arrangement, or when patterns are similar but have a different number subitise structured and unstructured patterns, including those which show numbers within 10, in relation to 5 and 10 be encouraged to identify when it is appropriate to count and when groups can be subitised.</p>	<p>Children know how to verbally count to 20 and beyond, including counting from different starting numbers</p> <p>Children know how to count with more confidence and accuracy in both verbal and object counting.</p>	<p>Children know the composition of 10.</p>	<p>Children know how to order sets of objects, linking this to their understanding of the ordinal number system.</p>	<p>Children know how to compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.</p> <p>Children know how to rotate shapes to fill a given space when completing jigsaws and shape puzzles.</p> <p>Children know how to match arrangements of shapes using positional language to describe where the shapes are in relation to one another.</p> <p>Children know how to complete tangram outlines by rotating shapes to fit into spaces.</p> <p>Children know how to match shapes with coloured pictures and progress to pictures with the outline only. Focusing on shape rather than colour.</p> <p>Children know how to design their own pictures using pattern/shape blocks.</p> <p>Children know that shapes can be combined and separated to make new shapes.</p>
<p><b>Daily Routine</b></p>	<ul style="list-style-type: none"> <li>• Practise 'whisper counting' sounds while waiting on the carpet or lining up or during other transition times.</li> <li>• Look for similar opportunities to practise counting in silly voices</li> <li>• Practise 'whisper counting' sounds while waiting on the carpet or lining up or during other transition times.</li> <li>• Look for similar opportunities to practise counting in silly voices</li> <li>• Use your fingers in patterns of doubles to show quantities during normal class activities. Can everyone please pick up 8 pieces of paper [show 4 fingers on one hand and 4 fingers on the other] from the floor? Or can the first 4 children [show 2 fingers on each hand] please get their coats and line up?</li> <li>• When the children are tidying up, ask everyone to pick up 'this many' e.g. toys, construction materials, etc. Show the amounts on your fingers.</li> <li>• During transition times, play a game of 'Bunny Ears'. Show a number of fingers that sum to 5 across both of your hands and hold them above your head like bunny ears. Can the children say how many fingers they can see in the bunny's ears?</li> </ul>				

Summer 2	Subitising	Cardinality, ordinality and counting	Composition	Comparison	Shape, Space, Measure and Spatial Reasoning
<p><b>Adult Led Inputs &amp; Enhanced Provision (Play)</b></p>	<p><i>In this half term, the children will consolidate their understanding of concepts previously taught through working in a variety of contexts with different numbers.</i></p>				<p><b>Children know that places and models can be replicated.</b></p> <p><b>Children know how to replicate simple constructions, models, real places and place in stories.</b></p> <p><b>Children know how to use positional language to describe where objects are in relation to other items.</b></p> <p><b>Children know that there is a relationship between numbers and shapes such as Cuisenaire rods, Numicon and multi-link cubes.</b></p> <p><b>Children know that they can make maps and plans to represent places and use these to see where things are in relation to other things.</b></p> <p><b>Children know how to create their own maps to represent models they build, familiar places and places in stories.</b></p>
<p><b>Daily Routine</b></p>	<ul style="list-style-type: none"> <li>• <b>Compare how many children are absent as part of your daily registration routine. Is it more or fewer children than yesterday? How do you know? Can you show me on your fingers?</b></li> <li>• <b>Practise counting together the number of the children present as part of your daily registration routine.</b></li> <li>• <b>Have a 'number rhyme of the week' to sing/say during transition times.</b></li> <li>• <b>When starting an activity, ask the children to distribute any resources fairly. How can we make sure that we have an equal number of (e.g.) pencils?</b></li> <li>• <b>During transition times, play a game of 'Bunny Ears' in which you call out a number to 5 and the children put their fingers above their heads to look like a bunny's ears. Can the children use BOTH of their hands to make bunny ears that sum to 5?</b></li> <li>• <b>Label some pots with non-standard arrangements of dots. How many pencils belong in this pot? How do you know?</b></li> </ul>				