



## MATHEMATICS

### MA1 (Number) MA2 (Shape, Space and Measure)

***This document shows how our Maths curriculum develops from Nursery to Year 2. From Year 1 onwards, Turnfurlong Infant School uses the Singapore Maths Mastery Scheme, 'Maths no problem'.***

#### **Intent: EYFS**

***In the Early Years Foundation Stage (Nursery and Reception) mathematical concepts are taught through carefully planned adult directed teaching and then developed and deepened through opportunities for children to apply their knowledge and skills in the learning environment. Key mathematical resources such as blocks for building, numberlines, timers and resources for counting should always be available in the learning environment and children should know where to find these resources. We call this our 'continuous provision'. Staff also meet weekly to plan the learning environment carefully to enable children to apply and extend their understanding in a wide variety of meaningful contexts. We call this our 'enhanced provision'. Examples of possible enhanced provision include developing a role-play area where money is used such as a shop or café or giving the children a problem to solve involving a mathematical concept. Staff also develop and embed mathematical language by modelling vocabulary in the context of the children's free-flow play in the indoor and outdoor environment e.g. keeping and recording the score in a game in the outdoor area, naming 3D shapes in context when tidying away the blocks. In the EYFS we use the document 'Development Matters in the Early Years Foundation Stage' and this separates mathematical learning into two aspects; number and shape, space and measure. Our aim is for children to have attained the Early Learning Goals in both of these aspects of learning by the end of Reception.***

	Learning experiences	Key vocabulary	Development Matters in the EYFS
Nursery	<p><b>Adults support and model the language of number through their interactions with children in the learning environment</b></p> <p>Singing number songs with props where items are added or taken away (5 currant buns, 5 little ducks etc)</p>	<p>Numbers within 10</p> <p>Give me</p> <p>More</p> <p>A lot</p> <p>How many?</p> <p>Altogether</p> <p>Show me</p>	<p><b><u>Number</u></b></p> <ul style="list-style-type: none"> <li>• Knows that things exist, even when out of sight.</li> <li>• Beginning to organise and categorise objects, e.g. putting all the teddy bears together or teddies and cars in separate piles.</li> <li>• Says some counting words randomly.</li> <li>• Selects a small number of objects from a group when asked, for example, 'please give me one', 'please give me two'.</li> <li>• Recites some number names in sequence.</li> <li>• Creates and experiments with symbols and marks representing ideas of number.</li> <li>• Begins to make comparisons between quantities.</li> <li>• Uses some language of quantities, such as 'more' and 'a</li> </ul>

<p>Modelling different ways to represent numbers; 'how many fingers?'</p> <p>Mark making materials in the learning environment to support mathematical mark making; clipboards, pens/pencils</p> <p>Opportunities for sorting, grouping and counting by property Daily adult-initiated counting and problem-solving activities; how many children at group time, counting cups at snack time</p> <p><b>Enhanced provision</b></p> <p>Staff meet weekly to plan for enhanced provision based on children's observed interests, next steps in learning and opportunities to apply, deepen and embed adult-led learning</p> <p><b>Adults support and model the language of shape, space and measure through their interactions with children in the learning environment</b></p>	<p>In/out/fit</p> <p>Empty/full</p> <p>Now/next/before/after/soon</p> <p>big/small</p>	<p>lot'. • Knows that a group of things changes in quantity when something is added or taken away.</p> <ul style="list-style-type: none"> <li>• Uses some number names and number language spontaneously.</li> <li>• Uses some number names accurately in play.</li> <li>• Recites numbers in order to 10.</li> <li>• Knows that numbers identify how many objects are in a set.</li> <li>• Beginning to represent numbers using fingers, marks on paper or pictures.</li> <li>• Sometimes matches numeral and quantity correctly.</li> <li>• Shows curiosity about numbers by offering comments or asking questions.</li> <li>• Compares two groups of objects, saying when they have the same number.</li> <li>• Shows an interest in number problems.</li> <li>• Separates a group of three or four objects in different ways, beginning to recognise that the total is still the same.</li> <li>• Shows an interest in numerals in the environment.</li> <li>• Shows an interest in representing numbers.</li> <li>• Realises not only objects, but anything can be counted, including steps, claps or jumps.</li> </ul> <p><b>Shape, Space and Measure</b></p> <ul style="list-style-type: none"> <li>• Attempts, sometimes successfully, to fit shapes into spaces on inset boards or jigsaw puzzles.</li> <li>• Uses blocks to create their own simple structures and arrangements.</li> <li>• Enjoys filling and emptying containers.</li> <li>• Associates a sequence of actions with daily routines.</li> <li>• Beginning to understand that things might happen 'now'.</li> <li>• Notices simple shapes and patterns in pictures.</li> <li>• Beginning to categorise objects according to properties such as shape or size.</li> <li>• Begins to use the language of size.</li> <li>• Understands some</li> </ul>
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	<p><b>Continuous provision</b></p> <p>Children have access to a wide variety of jigsaw puzzles in indoor learning environment</p> <p>Children have access to a variety of blocks for construction in indoor and outdoor learning environment</p> <p>Sand and water play; developing concepts of capacity</p> <p>Children’s developing concept of time supported through visual timeline (today, now, later, soon)</p> <p>Climbing experiences support children’s developing understanding of positional language</p> <p><b>Enhanced provision</b></p> <p>Staff meet weekly to plan for enhanced provision based on children’s observed interests, next steps in learning and opportunities to apply, deepen and embed adult-led learning</p>	<p>biggest/smallest bigger than/smaller than</p> <p>round/tall/long/short</p> <p>Shape names: square, triangle, rectangle, circle</p> <p>Under/over</p>	<p>talk about immediate past and future, e.g. ‘before’, ‘later’ or ‘soon’. • Anticipates specific time-based events such as mealtimes or home time.</p> <ul style="list-style-type: none"> <li>• Shows an interest in shape and space by playing with shapes or making arrangements with objects.</li> <li>• Shows awareness of similarities of shapes in the environment.</li> <li>• Uses positional language.</li> <li>• Shows interest in shape by sustained construction activity or by talking about shapes or arrangements.</li> <li>• Shows interest in shapes in the environment.</li> <li>• Uses shapes appropriately for tasks.</li> <li>• Beginning to talk about the shapes of everyday objects, e.g. ‘round’ and ‘tall’.</li> </ul>
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<p>Reception</p>	<p>In Reception the children receive a daily whole class Maths input, 'Magic Maths'.</p> <p><b>Enhanced provision</b> Staff meet weekly to plan for enhanced provision based on children's observed interests, next steps in learning and opportunities to apply, deepen and embed adult-led learning</p> <p><b>Autumn:</b> Number and shape songs – song of the week</p> <p>Counting and ordering numbers within 10</p> <p>Number of the week; exploring a number 1-10</p> <p>Modelling mathematical language to solve problems: more, less, fewer, have we got enough?, how many?</p> <p><b>Spring:</b> Number and shape song of the week Ordering numbers within 20; jumbled numbers, what's missing?, one more, one less</p>		<p><b>Number</b></p> <ul style="list-style-type: none"> <li>• Uses some number names and number language spontaneously.</li> <li>• Uses some number names accurately in play.</li> <li>• Recites numbers in order to 10.</li> <li>• Knows that numbers identify how many objects are in a set.</li> <li>• Beginning to represent numbers using fingers, marks on paper or pictures.</li> <li>• Sometimes matches numeral and quantity correctly.</li> <li>• Shows curiosity about numbers by offering comments or asking questions.</li> <li>• Compares two groups of objects, saying when they have the same number.</li> <li>• Shows an interest in number problems.</li> <li>• Separates a group of three or four objects in different ways, beginning to recognise that the total is still the same.</li> <li>• Shows an interest in numerals in the environment.</li> <li>• Shows an interest in representing numbers.</li> <li>• Realises not only objects, but anything can be counted, including steps, claps or jumps.</li> </ul> <ul style="list-style-type: none"> <li>• Recognise some numerals of personal significance.</li> <li>• Recognises numerals 1 to 5.</li> <li>• Counts up to three or four objects by saying one number name for each item.</li> <li>• Counts actions or objects which cannot be moved.</li> <li>• Counts objects to 10, and beginning to count beyond 10.</li> <li>• Counts out up to six objects from a larger group</li> <li>• Selects the correct numeral to represent 1 to 5, then 1 to 10 objects.</li> <li>• Counts an irregular arrangement of up to ten objects.</li> <li>• Estimates how many objects they can see and checks by counting them.</li> <li>• Uses the language of 'more' and 'fewer' to compare two sets of objects.</li> <li>• Finds the total number of items in two groups by counting all of them.</li> <li>• Says the number that is one more than a given number.</li> <li>• Finds one more or one less from a group of up to five objects, then ten objects.</li> <li>• In practical activities and discussion, beginning to use the vocabulary involved in adding and subtracting.</li> <li>• Records, using marks that they can interpret and explain.</li> <li>• Begins to identify own mathematical problems based on own interests and fascinations.</li> </ul> <p><b>Early Learning Goal</b> Children count reliably with numbers from one to 20, place them in order and say which number is one more or one less than a given number. Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer. They solve problems, including doubling, halving and sharing.</p>
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	<p>Number of the week; exploring a number 11-20</p> <p>Sharing quantities using real objects – have we got the same?</p> <p>Adding and subtracting single digit numbers with quantities and objects</p> <p>Scoring games in the outdoor area (skittles, buckets)</p> <p><b>Summer:</b> Ordering numbers within 20; what's missing? one more, one less</p> <p>Doubling and halving numbers with numicon</p> <p>Adding and subtracting single digit numbers with quantities and objects</p> <p>Scoring games in the outdoor area (skittles, buckets)</p> <p>Snakes and ladders</p> <p>Making own board games (link to PSE)</p>		
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<p><b>Adults support and model the language of shape, space and measure through their interactions with children in the learning environment</b></p> <p><b>Continuous provision</b> Children have access to a variety of blocks for construction in indoor and outdoor learning environment</p> <p>Sand and water play; developing concepts of capacity</p> <p>Children’s developing concept of time supported through visual timeline (today, now, later, soon)</p> <p>Climbing experiences support children’s developing understanding of positional language</p> <p>Children use sandtimers to measure time in meaningful ways e.g. to support turn taking on popular equipment outside! as part of continuous provision</p> <p><b>Enhanced provision</b> Staff meet weekly to plan for enhanced provision based on children’s observed interests, next steps in learning and opportunities to</p>	<p>Now/next/before/after/soon Yesterday, today, tomorrow, days of the week</p> <p>big/small biggest/smallest bigger than/smaller than long, longer, longest heavy, heavier, heaviest</p> <p>round/tall/long/short</p> <p>2D shape names: square, triangle, rectangle, circle</p> <p>3D shape names: cube, cylinder, cuboid, sphere</p> <p>Recognises coins; penny, 2p, 5p, 10p</p> <p>Minute, hour</p> <p>Under/over Behind/next to</p>	<p><b>Shape, Space and Measure</b></p> <ul style="list-style-type: none"> <li>• Shows an interest in shape and space by playing with shapes or making arrangements with objects.</li> <li>• Shows awareness of similarities of shapes in the environment.</li> <li>• Uses positional language.</li> <li>• Shows interest in shape by sustained construction activity or by talking about shapes or arrangements.</li> <li>• Shows interest in shapes in the environment.</li> <li>• Uses shapes appropriately for tasks.</li> <li>• Beginning to talk about the shapes of everyday objects, e.g. ‘round’ and ‘tall’.</li> </ul> <ul style="list-style-type: none"> <li>• Beginning to use mathematical names for ‘solid’ 3D shapes and ‘flat’ 2D shapes, and mathematical terms to describe shapes.</li> <li>• Selects a particular named shape.</li> <li>• Can describe their relative position such as ‘behind’ or ‘next to’.</li> <li>• Orders two or three items by length or height.</li> <li>• Orders two items by weight or capacity.</li> <li>• Uses familiar objects and common shapes to create and recreate patterns and build models.</li> <li>• Uses everyday language related to time.</li> <li>• Beginning to use everyday language related to money.</li> <li>• Orders and sequences familiar events.</li> <li>• Measures short periods of time in simple ways.</li> </ul> <p><b>Early Learning Goal</b> Children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. They recognise, create and describe patterns. They explore characteristics of everyday objects and shapes and use mathematical language to describe them.</p>
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	<p>apply, deepen and embed adult-led learning</p> <p><b>Autumn:</b> Language of size (link to Goldilocks and the Three Bears)</p> <p>Recognising and continuing pattern (My Mum and Dad make me laugh)</p> <p>Comparing objects by length, weight and height (height chart in classroom)</p> <p>Positional language; behind, next to, under, over (link to small world)</p> <p>Time: Days of the week in daily routine</p> <p><b>Spring:</b> 2D shape – naming and describing properties</p> <p>Money: '5 currant buns in the bakers shop' 'Hot Cross Buns'</p> <p>Time: Measuring time using everyday language and to solve problems: 1 minute challenges (link to sponsored bounce, '5 minutes peace')</p>		
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	<p><b>Summer:</b> Money: Recognising coins within 10p and using money to solve problems (link to car wash role play)</p> <p>Time: Telling the time to o'clock, 'What's the time Mr Wolf?'</p> <p>Time: Days of the week 'Oliver's Beanstalk'</p> <p>3D shape: naming and describing</p>		
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**Intent: Year 1 and 2**

***As the children move into Key Stage 1, we follow on and develop from their experiences in the EYFS. In Key Stage 1, Mathematics teaching introduces the children to the Singapore Maths Mastery Scheme, 'Maths - No Problem!' and this is the core scheme from which teaching is delivered. The 'Maths - No Problem!' has a strong focus on deepening understanding of key skills through practical problem solving and exploration. The programme works on a spiral design, revisiting and building on concepts over time through a 'Concrete-Pictorial-Abstract' approach. This supports the principal focus of the focus of mathematics teaching in Key Stage 1 of the National Curriculum, 'to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources [for example, concrete objects and measuring tools]'***

The National Curriculum Key Stage 1 Programmes of Study for Mathematics tell us that Key Stage 1 pupils should:

- develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.
- By the end of year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency.
- Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1

	<b>Learning experiences</b>	<b>Key vocabulary</b>
Year 1	<b>Maths – No Problem! Textbook and Workbook 1A</b> <ul style="list-style-type: none"><li>• <b>Numbers to 10;</b> Counting to 10, Counting objects to 10, Writing to 10, Counting to Zero, Comparing Numbers of Objects, Ordering Numbers, Comparing Numbers</li><li>• <b>Number bonds;</b> Making Number Bonds, Making Number Stories</li><li>• <b>Addition within 10;</b> Add by Using Number Bonds, Add by Counting on, Completing Number Sentences, Making Addition Stories, Solving Picture Problems</li><li>• <b>Subtraction within 10;</b> Subtract by Crossing Out, Subtract by using Number Bonds, Subtract by Counting Back, Making Subtraction Stories, Solving Picture Problems, Addition and Subtraction</li><li>• <b>Positions;</b> Naming positions, naming positions in Queues, Naming Left and Right Positions</li></ul>	Add, subtract, total  Part/part/whole  Stories

- **Numbers to 20;** Counting to 20, Writing to 20, Comparing Numbers, Ordering Numbers, Number Patterns
- **Addition and Subtraction Within 20;** Add by Counting on, Add by Making 10, Add by Adding Ones, Subtract by Counting Back, Subtract by Subtracting Ones, Subtract from 10, Addition and Subtraction Facts
- **Shapes and Patterns;** Recognising solids, Recognising shapes, Grouping Shapes, Making Patterns
- **Length and Height;** Comparing Height and Length, Measuring Length Using Things, Measuring Height and Length Using Body Parts, Measuring Height and Length Using a Ruler

**Maths – No Problem! Textbook and Workbook 1B**

- **Numbers to 40;** Counting to 40, Writing numbers to 40, Counting in Tens and Ones, Comparing Numbers, Finding out how much more, Making Number Patterns
- **Addition and Subtraction Word Problems;** Solving word problems
- **Multiplication;** Making equal groups, adding equal groups, Making equal rows, Making doubles, Solving word problems
- **Division;** Grouping equally, Sharing equally
- **Fractions;** Making halves, Making quarters, Sharing and grouping
- **Numbers to 100;** Counting to 100, Finding Tens and Ones, Comparing Numbers, Making Number Patterns
- **Time;** Telling Time to the Hour, Telling Time to the half hour, Using Next, Before and After, Estimating duration of time, Comparing time, Using a calendar
- **Money;** Recognising coins, Recognising notes
- **Volume and Capacity;** Comparing Volume and Capacity, Finding Volume and Capacity, Describing Volume using Half and a Quarter
- **Mass;** Comparing Mass, Finding Mass
- **Space;** Describing Positions, Describing Movements, Making Turns

Year 2	<p><b>Maths – No Problem! Textbook and Workbook 2A</b></p> <ul style="list-style-type: none"> <li>• <b>Numbers to 100;</b> Counting to 100, Place Value, Comparing Numbers, Number bonds, Number Patterns</li> <li>• Addition and Subtraction; Simple adding, Adding with renaming, Simple subtracting, Subtracting with renaming, Addition of three numbers</li> <li>• <b>Multiplication of 2, 5 and 10;</b> Multiplication as equal groups, 2 times table, 5 times table, 10 times table, Multiplying by 2, 5 and 10, Solving word problems</li> <li>• <b>Multiplication and division of 2, 5 and 10;</b> Grouping, sharing, Dividing by 2, Dividing by 5, Dividing by 10, Multiplication and Division, Solving Word Problems, Odd and Even Numbers</li> <li>• <b>Length;</b> Measuring length in metres, measuring length in centimetres, comparing length in metres, comparing length in centimetres, comparing the length of lines, solving word problems</li> <li>• <b>Mass;</b> Measuring mass in kilograms, measuring mass in grams, comparing masses of two objects, comparing the mass of three objects, solving word problems</li> <li>• <b>Temperature;</b> Reading temperature, estimating temperature</li> <li>• <b>Picture graphs;</b> Reading picture graphs</li> </ul> <p><b>Maths – No Problem! Textbook and Workbook 2B</b></p> <ul style="list-style-type: none"> <li>• <b>Word problems;</b> solving word problems</li> <li>• <b>Money;</b> Writing amounts of money, Counting money, Showing equal amounts of money, Exchanging money, Comparing amounts of money, Calculating total amount, Calculating change, Solving word problems</li> <li>• <b>Two dimensional shapes;</b> Identifying sides, identifying vertices, identifying lines of symmetry, making figures, sorting shapes, drawing shapes, making patterns, describing patterns, moving shapes, turning shapes</li> <li>• <b>Three dimensional shapes;</b> recognising three-dimensional shapes, describing three-dimensional shapes, grouping three-dimensional shapes, forming three-dimensional structures, making patterns</li> <li>• <b>Fractions;</b> Making Equal Parts, Showing Half and Quarter, Showing Quarters, Showing Thirds, Naming Fractions, Making Equal Fractions, Comparing and ordering fractions, Counting wholes and parts, Counting in halves, Counting in quarters, Counting in thirds, Finding part of a set, Finding part of a quantity</li> <li>• <b>Time;</b> Telling and writing the time to 5 minutes, Telling and Writing Time, Sequencing Events, Drawing clock hands, Finding durations of times, Finding ending times, Finding starting times, Comparing time</li> <li>• <b>Volume;</b> Comparing volume, Measuring volume in litres, measuring volume in millilitres, solving word problems</li> </ul>	<p>Digit / number / tens / ones Stand for Greater / smaller Greatest / smallest More / less / fewer Compare Pattern Skip counting Altogether / in all / add / addition / total Equation Renaming Regroup Subtraction / subtract / left / after / give away</p> <p>Multiplication / multiply / equal groups times tables</p> <p>Division / divide / share Odd / even</p> <p>Length long / short Longer / shorter Longest / shortest measure unit centimetre height</p>
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		<p>about</p> <p>Mass / weigh Heavy / light Heavier / lighter Heaviest / Lightest Kilograms / grams</p> <p>Temperature / hot / cold / warm Hotter / Colder Hottest / Coldest Thermometer Degrees celcius Estimate</p> <p>Graphs Pictogram Most / least / as many / fewer / more Tally chart / table / block diagram</p> <p>Bar model</p> <p>£, p / symbol Coin / note Save / pay / exchange / change / cost Bought / buy / receive Calculate</p>
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		<p>Shape / side / vertices / vertex / face / polygon / edge</p> <p>Line of symmetry / symmetrical</p> <p>Triangle / circle / square / rectangle / semi-circle</p> <p>Orientation</p> <p>Shape / size / colour</p> <p>Pattern</p> <p>Turn / half / quarter / three-quarter</p> <p>Clockwise / anti-clockwise</p> <p>Flat / curved / roll</p> <p>Sphere / cuboid / cube / cylinder / cone / prism / pyramid</p> <p>Half / quarter / third</p> <p>Numerator / denominator</p> <p>Set / quantity</p> <p>Minute / hour</p> <p>Hand / o'clock / past / to</p> <p>Morning / evening</p> <p>Before / after / next</p> <p>Duration</p> <p>Later / start / finish</p> <p>Litres / millilitres</p> <p>Capacity</p>
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