Nursery Holywell Mathematics Long Term Plan

Focus	Mathematics	Teaching Strategies (whole class teaching and continuous provision)	Curriculum Links inc. Books and Nursery Rhymes STEM
Number	•Develop fast recognition of up to 3 objects, without having to count them individually ('subitising'). •Recite numbers past 5. 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: for example, showing the right number of objects to match the numeral, up to 5.	•Point to small groups of two or three objects: "Look, there are two!" Occasionally ask children how many there are in a small set of two or three. •Regularly say the counting sequence, in a variety of playful contexts, inside and outdoors, forwards and backwards, sometimes going to high numbers. For example: hide and seek, rocket-launch countdowns. •Count things and then repeat the last number. For example: "1, 2, 3 – 3 cars". Point out the number of things whenever possible; so, rather than just 'chairs', 'apples' or 'children', say 'two chairs', 'three apples', 'four children'. •Ask children to get you several things and emphasise the total number in your conversation with the child. •Use small numbers to manage the learning environment. Suggestions: have a pot labelled '5 pencils' or a crate for '3 trucks'. Draw children's attention to these throughout the session and especially at tidy-up time: "How many pencils should be in this pot?" or "How many have we got?" etc.	Nursery Rhymes: 5 little frogs 5 little men in a flying saucer 5 little monkeys jumping on the bed 5 little ducks went swimming my day 10 fat sausages 10 green bottles 1,2,3,4,5 Five little monkeys swinging in a tree One potato, two potato Five big ice creams Five little woolly lambs Five brown eggs Five cranky crabs 5 little astronauts 5 sticky lollipops 5 little turtles 2 little dicky birds 5 clean squeaky pigs 5 little peas Books: 10 Little Dinosaurs 10 Little Monsters Owl Babies Goldilocks and the 3 Bears

Numerical Patterns	•Experiment with their 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'	•Encourage children in their own ways of recording (for example) how many balls they managed to throw through the hoop. Provide numerals nearby for reference. Suggestions: wooden numerals in a basket or a number track on the fence. •Discuss mathematical ideas throughout the day, inside and outdoors. Suggestions: • "I think Jasmin has got more crackers…" • Support children to solve problems using fingers, objects and marks: "There are four of you, but there aren't enough chairs…." • Draw children's attention to differences and changes in amounts	
Shape	•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'.	•Encourage children to play freely with blocks, shapes, shape puzzles and shape-sorters. •Sensitively support and discuss questions like: "What is the same and what is different?" •Encourage children to talk informally about shape properties using words like 'sharp corner', 'pointy' or 'curvy'. Talk about shapes as you play with them: "We need a piece with a straight edge."	Books: Shark in the Park Dig, Dig, Digging Peepo
Shape application	•Select shapes appropriately: flat surfaces for building, a triangular prism for a roof, etc. •Combine shapes to make new ones – an arch, a bigger triangle, etc.	•Provide a variety of construction materials like blocks and interlocking bricks. •Provide den-making materials. Allow children to play freely with these materials, outdoors and inside. When appropriate, talk about the shapes and how their properties suit the purpose. Provide shapes that combine to make other shapes, such as pattern blocks and interlocking shapes, for children to play freely with. When appropriate, discuss the different designs that children make. •Occasionally suggest challenges, so that children build increasingly more complex constructions.	STEM

		•Use tidy-up time to match blocks to silhouettes or fit things in containers, describing and naming shapes. Suggestion: "Where does this triangular one /cylinder /cuboid go?"	
Spatial Reasoning	•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'.	•Discuss position in real contexts. Suggestions: how to shift the leaves off a path or sweep water away down the drain. •Use spatial words in play, including 'in', 'on', 'under', 'up', 'down', 'besides' and 'between'. Suggestion: "Let's put the troll under the bridge and the billy goat beside the stream." •Take children on a journey (forest school): recall the route and the order of things seen on the way. •Set up obstacle courses, interesting pathways and hiding places for children to play with freely. When appropriate, ask children to describe their route and give directions to each other. •Provide complex train tracks, with loops and bridges, or water-flowing challenges with guttering that direct the flow to a water tray, for children to play freely with. •Read stories about journeys	Nursery Rhymes: Incy Wincy Spider Grand Old Duke of York Hickory dickory dock Jack and Jill Books: Little Red Riding Hood We're Going on a Bear Hunt
Measure	•Make comparisons between objects relating to size, length, weight and capacity.	•Provide experiences of size changes. Suggestions: "Can you make a puddle larger?", "When you squeeze a sponge, does it stay small?", "What happens when you stretch dough, or elastic?" •Talk with children about their everyday ways of comparing size, length, weight and capacity. Model more specific techniques, such as lining up ends of lengths and straightening ribbons, discussing accuracy: "Is it exactly…?"	Books: Pumpkin Soup Supertato
Patterns	•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.	•Provide patterns from different cultures, such as fabrics. Provide a range of natural and everyday objects and materials, as well as blocks and shapes, for children to play with freely and to make patterns with. When appropriate, encourage children to continue patterns and spot mistakes. •Engage children in following and inventing movement and music patterns, such as clap, clap, stamp. •Talk about patterns of events, in cooking, gardening, sewing or getting dressed. Suggestions:	•Keep to the Beat sessions •Talk for Writing Text Mapping and Oral Rehearsing Books: Elmer

	•Notice and correct an error in a repeating pattern. •Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...'	• 'First', 'then', 'after', 'before' • "Every day we…" • "Every evening we…" •Talk about the sequence of events in stories. •Use vocabulary like 'morning', 'afternoon', 'evening' and 'night-time', 'earlier', 'later', 'too late', 'too soon', 'in a minute'. •Count down to forthcoming events on the calendar in terms of number of days or sleeps. Refer to the days of the week, and the day before or day after, 'yesterday' and 'tomorrow'.	Aliens Love Underpants

Developed using the Development Matters document that provides guidance for the learning of 3-4 year olds in our Nursery provision.

Autumn	Spring	Summer
Number: songs, stories and rhymes	Number: Story of 1 to 5 (match, represent, **subitise**, find)	Numerical patterns
Number: order	Number: more/less	Shape application
Number: counting objects (1-1 correspondence to 5)	Spatial reasoning	Measure
Shape: 2D and 3D vocabulary	Patterns	Number: consolidation

Early childhood mathematics pedagogy: exploration, apprenticeship & making sense (from Early Childhood Maths Group)
All children are entitled to a strong mathematical foundation, enabling them to show the Characteristics of Effective Learning in mathematics. Early years teaching is underpinned by practitioners' understanding of children's possible mathematical learning trajectories and a belief that all children are effective mathematical learners, although their previous experiences may differ. Early mathematical understanding is achieved during both child initiated play and adult teaching through meaningful contexts, so that all children have daily moments where they explicitly engage with mathematical concepts and language.

Adults provide:
•exploration with shape, space, measures and numbers, e.g. construction
• outdoor learning- 'huge & outdoors'
• routines – snacktime, tidying up
• number rhymes, books and stories – linking fingers and symbols
• games – tracks, targets, hiding and counting
• puzzles and challenges- models and patterns
• familiarity and investigation with mathematical tools eg calculators, timers, scales

Adults engage children individually and in groups with:
• choosing and following their own mathematical interests
• 'low floor, high ceiling' problems to solve creatively
• a repertoire of mathematical communication, including personalized recording Adults use teaching strategies:
• being playful with mathematical ideas- making deliberate mistakes, testing ideas with ludicrous suggestions
• 'sustained shared mathematical thinking' with children- e.g. 'What if..'
• ongoing observation and diagnostic assessment of learning trajectories Adults are disposed towards:
• being curious about children's reasoning & expressions of their thinking
• supporting children to be resilient and take risks, spot patterns and make connections
• collaborating with parents and families
• being enthusiastic and interested in maths

Mathematics is one of the prime areas of learning in the EYFS Framework. As a Nursery provision attached to a primary school, we are aware of the Early Learning Goals to be achieved by the end of Reception and our curriculum supports children in being able to achieve these goals.
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.

Early Learning Goal: Number
Children at the expected level of development will:
* Have a deep understanding of number to 10, including the composition of number
* Subitise (recognise quantities without counting) up to 5
* Automatically recall (without reference to rhymes, counting or other aids) number bonds to 5 (including subtraction facts) and some number bonds to 10, including double facts.
Early Learning Goal: 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.