Nursery - Number and Number Patterns
Maths progression through EYFS Nursery

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.

ELG: Number ■ 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 ■ 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

Focus	Place value: Counting	Place value: Represent	Place value: Use and compare	Addition and subtraction; recall, represent, use	Addition and subtraction: Calculation	Addition and subtraction: Solve problems
Nursery Skills, Knowledge & Understanding	▪ Enjoy counting verbally as far as they can go ▪ Point or touch (tag) each item, saying one number for each item, using the stable order of 1,2,3,4,5 ▪ Use some number names and number language within play, and may show fascination with large numbers	▪ Begin to recognise numerals 0 to 10 ▪ Subitise one, two and three objects (without counting) ▪ Link numerals with amounts up to 5 and maybe beyond	▪ Compare two small groups of up to five objects, saying when there are the same number of objects in each group, e.g. *You've got two, I've got two. Same!*	▪ Count up to five items, recognising that the last number said represents the total counted so far (cardinal principle) ▪ Ascribe mathematical meaning to own marks	▪ Through play and exploration, begin to learn that numbers are made up (composed) of smaller numbers ▪ Begin to recognise that each counting number is one more than the one before	▪ Begin to use understanding of number to solve practical problems in play and meaningful activities ▪ Separate a group of three or four objects in different ways, beginning to recognise that the total is still the same

Focus	Spatial Awareness	Shape	Pattern	Measures
Nursery Skills, Knowledge & Understanding	▪ Respond to and uses language of position and direction ▪ Predict, move and rotate objects to fit the space or create the shape they would like	▪ Choose items based on their shape which are appropriate for a purpose ▪ Know 2D shapes names – circle, triangle, rectangle, square ▪ Know some 3D shape names ▪ Show awareness of shape similarities and differences between objects ▪ Enjoy partitioning and combining shapes to make new shapes with 2D and 3D shapes ▪ Attempt to create arches and enclosures when building, using trial and improvement to select blocks	▪ Create their own spatial patterns showing some organisation or regularity ▪ Explore and adds to simple linear patterns of two or three repeating items, e.g., *stick, leaf (AB) or stick, leaf, stone (ABC)* ▪ Join in with simple patterns in sounds, objects, games and stories dance and movement, predicting what comes next	▪ In meaningful contexts, finds the longer or shorter, heavier or lighter and more/less full of two items ▪ Recall a sequence of events in everyday life and stories

□ Children will be exposed to mathematical vocabulary and mathematical experiences in the indoor and outdoor classrooms. □ Through well-chosen resources such as water play, sand play, construction and small world children will be able to play what they know in a purposeful way whilst learning.

Reception - Maths

EYFS Curriculum (ELGs in bold)	Key Performance Indicators	Potential to deepen the learning

Cardinality and Counting *(Mostly incorporated within ELG statement **Have a deep understanding of number to 10**)*		
Accurately count a set of up to 10 objects and say how many there are	• Recites 1-10 in a stable counting order • Uses 1:1 correspondence to accurately count a set of up to 5 objects • Understands last number said represents whole set up to 5 • Counts out up to 5 objects from a larger group • Uses 1:1 correspondence to accurately count a set of up to 10 objects • Understands last number said represents whole set up to 10 • Counts out up to 10 objects from a larger group	
Subitise (recognise quantities without counting) up to 5	• Can subitise regular arrangements of the quantities 1-3 e.g. a dice face, fingers or structured manipulatives like numicon or counters on a five frame • Can recognise small amounts (up to three) when they are not in the 'regular' arrangement, e.g. small handfuls of objects • Can subitise regular arrangements of quantities 1-5 e.g. a dice face, fingers or structured manipulatives like numicon or counters on a tens frame • Can subitise small amounts (up to five) when they are not in the 'regular' arrangement, e.g. small handfuls of objects.	• Applies subitising when showing/getting a set or playing a game? (e.g. instantly picks up 5 pebbles on request without counting)
Read and match number symbols to sets of objects	• Can say the number word when shown numerals 1-5 • Counts out and matches sets of objects to numerals 1-5 • Can put the numeral cards 1-5 in order • Can say the number word when shown numerals 6-10 • Counts out and matches sets of objects to numerals 6-10 • Can put the numeral cards 1-10 in order	• Begin to reason and problem solve within the range 1-10
Recognise when amounts have been rearranged and generalise that, if nothing has been added or taken away, then the amount is the same.	• Knows that it doesn't matter which item you count first the count will be the same • Arranges a given set of objects in different ways and still knows how many there are without recounting • Corrects a puppet that thinks there are more objects when items are more spread out	• Begin to reason and problem solve within the range 1-10
Can count forwards and backwards from any number to 10	• Can count backwards from 10-0 • Can count forwards to 10 from any start number • Can count forwards from any number and stop at a given number e.g. count from 2-7 • Can count backwards to zero from any number • Can count backwards starting from any number to 10 and stop at a given number e.g. count backwards from 8 to 3	•
Verbally count beyond 20, recognising the pattern of the counting system;	• Begins to count a few numbers past 10 • Can join in with whole class counting in highly patterned parts e.g. 22, 23, 24 • Counts to 20 accurately without missing out numbers • Can spot the 1-9 pattern appearing again and again within each decade on a 100 square and uses this to support counting from 20-29	• Knows the order of the tens to confidently count beyond 29 including over each tens barrier e.g. 69, 70, 71

Composition *(Mostly incorporated within ELG statement **Have a deep understanding of number to 10, including the composition of each number**)*		
Notice and subitise small groups within a larger set of objects (conceptual subitising)	• Use subitising to notice small groups (1-3) within a larger group of objects • Use subitising to notice small groups (up to 5) within a larger group of objects	• Begins to combine small groups to a total and articulates this e.g. I know there are 4 because I can see a 2 and a 2

	• Applies subitising (up to 5) to create groups within groups exploring different ways each number to 5 can look and describes what they see e.g. With my 5 I have made a 3 and a 2 •	• Be more systematic in exploring all the groups within groups for a given number so they know they have found all the possible representations
In practical activities, partition and recombine numbers up to 5 and then 10 into different pairs of numbers	• Investigates inverse operations through play – taking things away and putting them back • Physically separating a group of up to 10 objects (whole) into two parts (part- part-whole model) • Constructing a group of up to 10 (whole) from two kinds of things (parts) • Explore numbers 6-10 on apparatus that allows children to relate them back to 5 e.g. on tens frames 7 is a whole row of 5 and 2 more, on bead strings 7 is 5 white beads and 2 red ones	• Makes generalisations e.g. each part can never be bigger than the whole
Automatically recall (without reference to rhymes, counting or other aides) number bonds up to 5 (including subtraction facts)	• Use a systematic approach to find all the ways to make all the numbers up to 5 and begin to know some of these facts • In a play-based context, for numbers up to 5, predict all the pairs that can be made when you partition the number (number bonds)	• Makes generalisations and easily notices and uses patterns like always starting with the number and zero and then 1 less than the number and 1 or realising that every pair can be switched around to make a new pair • Reason and problem solve using known facts
Automatically recall (without reference to rhymes, counting or other aides) some number bonds to 10, including double facts.	• Use a systematic approach to find all the ways to make 10 • In a play-based context with 10 objects, predict a few of the pairs that can be made when you partition ten (number bonds) • Link composition work to work in pattern to explore how some numbers can be partitioned into equal parts and learn these double facts	• Uses generalisations from knowing number bonds 1-5 to explain how to find pairs that make 6-9 more efficiently e.g. knows to start with 0 and the number being partitioned, then put the 0 up by 1 and the other number down by 1
Pattern		
Recognise, continue, copy and create repeating patterns	• Can continue an AB pattern • Can copy an AB pattern • Can make their own AB patterns • Can continue an ABC, ABB, AABB, ABBC pattern • Can copy an ABC, ABB, AABB, ABBC pattern • Can make their own ABC, ABB, AABB, ABBC patterns	•
Identify the unit of repeat in a repeating pattern	• Identify the smallest part of a pattern and use this to 'name' a pattern • Split a pattern into these parts and use this to be able to spot errors in patterns • Use this knowledge to continue a pattern from the midpoint of a unit of repeat • Use this knowledge to correct a pattern without having to start all over again	• Make circular patterns – investigating whether their pattern will fit • Make square border patterns investigating whether their pattern will fit
Symbolise the unit structure of a repeating pattern and generalise the structure to another context	• Use own mark making ideas to record a pattern e.g. record a colour pattern with tally marks in different colours • Use objects to record a pattern e.g. picture cards to represent movements in a dance pattern • Make links between different contexts e.g. link the 2 ideas above by using a red tally to be a spin and a green tally to be a clap for example create the same pattern in a different context	• Apply ability to symbolise patterns to reason about whether a given pattern will fit around a circle or a square border •
Spot and create staircase patterns	• Notice growing patterns in books e.g. There was an old lady who swallowed a fly and order images as a staircase pattern • Make staircase patterns in ones with concrete apparatus such as Cuisenaire rods or numicon • Make link to 1 more and 1 less on number track and develop mental number line until they can say 1 more and 1 less for any number to 10 •	• Investigate other staircase patterns, can they work out what is happening? Can they record the pattern and link it to the number track?

Explore and represent patterns within numbers up to 10, including evens and odds.	• Sort odd and even representations of numbers e.g. numicon, numberblocks or counters on tens frames • Understand that even numbers can be represented exactly by sets of 2 and odd numbers have an odd one out • Use this to prove with practical apparatus whether a number is odd or even in range 0-10•	• Link odds and evens back to step patterns in twos and predict an odd or even number beyond 10
Explore and represent patterns within numbers up to 10, including double facts and how quantities can be distributed equally.	• Make reflective patterns e.g. using paint and fold in half then add extra pattern components on both sides or using graphics package with reflection enabled • Reflect sets of objects and record how many there are in total • Link sharing equally to known facts from composition work e.g. 2 composed from 1 and 1, 4 (2 and 2), 10 (5 and 5) • Moderation Comment and Date.	• Systematically generate doubles and halves facts to 10 and learn them all off by heart

‘First 4 Maths’ - Mathematics					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2

Cardinality & Counting 1.1 Accurate counting of sets of objects 1-5 NB S1 episodes 9 & 10 (1:1 correspondence, cardinality) 1.2 Subitising 1-3 NB S1 episodes 1-4 (Introducing 1, 2 and 3) 1.3 Numeral Recognition to 5 **Composition** 1.1 Conceptual subitising - noticing numbers within numbers **Comparison** 1.1 Compare sets 1-5 using vocab of more / fewer / most /fewest **Shape/Space** 1.1 2D shapes and their properties **Pattern** 1.1 Simple AB patterns (complete, copy, make own and spot/correct errors in patterns) Content here is a recap from Nursery and provides us with baseline assessment data.	**Cardinality & Counting** 2.1 Accurate counting of sets of objects 1-10, recognising and ordering numerals 1-10 2.2 Subitising 1-5 NB S1 episodes 6 & 7 (Introducing 4 and 5) **Composition** 2.1 Applied conceptual subitising NB S1 episode 11 (Stampolines) 2.2 Inverse operations - splitting and recombining sets of objects 1-5 including on part whole model NB S1 episode 12 (Whole of me) **Comparison** 2.1 Compare numbers using vocab of more/less 2.2 Find 1 more using sets of objects on tens frames and on a number track **Pattern** 2.1 identifying unit of repeat – AB & ABC patterns	**Cardinality & Counting** 3.1 Counting backwards 10-1 & ordering numbers 10-1 **Composition** 3.1 Systematic approach to partitioning sets of objects 1-5 including on part whole model NB S1 episode 14 (Holes) **Comparison** 3.1 Find 1 less using sets of objects on tens frame and on a number track **Measures** 3.1 Height **Shape/Space** 3.1 Spatial vocabulary (in front, behind, in between, on, in, under, first second, third) **Pattern** 3.1 More complex patterns – ABB, ABBC 3.2 Generalising pattern and transferring to another format e.g. link pattern of shapes to movements	**Composition** 4.1 Recall number bonds for numbers 1-5 4.2 Partitioning and recombining sets of objects 6-9 Including on part whole model and tens frame NB S2 episodes 1-5 (Introducing 6-10) **Measures** 4.1 Length **Shape/Space** 4.1 Representing spatial relationships as maps Spatial vocabulary (forwards, backwards, up, down, across) **Pattern (alongside Comparison)** 4.1 Numerical Patterns – staircase patterns linked to finding 1 more/1 less using a mental numberline (Comparison) NB S2 episodes 6 & 7 (Just add one & ten green bottles)	**Cardinality & Counting** 5.1 Counting beyond 10 noticing pattern in ones **Composition** 5.1 Systematic approach to splitting and recombining 10 including on tens frame and part whole model 5.2 recall some number bonds for 10 NB S2 Episode 13 (Blast Off!) **Measures** 5.1 Mass **Shape/Space** 5.1 3D shapes properties of shapes **Patterns** 5.1 Numerical patterns odds & evens NB S2 episode 11 (Odds & Evens)	**Cardinality & Counting** 6.1 Counting beyond 20 noticing pattern in tens **Measures** 6.1 Capacity 6.2 Time – sequence of events **Shape/Space** 6.1 Relationships between shapes **Pattern (alongside Composition & Comparison)** 6.1 Symmetry/reflections – link to doubles 6.2 Share fairly (comparison), Use part whole model to partition numbers where both parts are the same (Composition) and Look at halving as inverse of doubles (Pattern) NB S2 episode 9 (Double Trouble) Possible extension Sharing between more than two (comparison) NB S2 episode 8 (Counting Sheep) Splitting into more than 2 parts on a part whole model (composition) NB S2 episode 10 (The three threes)