Crossacres Long Term Mathematics Plan – 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. *EYFS Statutory Framework 2021*

Counting principles

The one-one principle – this involves children assigning one number name to each objects that is being counted. Children need to ensure that they count each objects that is being counted only once ensuring that they have counted every object. Children will sometimes count objects more than once or miss an object out that needs to be counted. Encourage children to line up objects and touch each one as they count saying one number name for each object. This will also avoid children counting more quickly than they touch the objects which again shows that they have not grasped one-one correspondence. When counting pictures children should use the strategy of drawing a line through each picture as they count it. Children should be taught number names through number songs and general counting.

The stable-order principle – children understand when counting that the numbers have to be said in a certain order. Children need to know all the number names for the amount in the group they are counting. Teachers can therefore encourage children to count aloud to larger numbers without expecting them to count that number of objects immediately. The order of numbers should be reinforced through number songs and daily counting activities.

The cardinal principle – Children understand that the number name assigned to the final object in a group is the total number of objects in that group. In order to grasp this principle, children need to understand the one-one and stable-order principles. From a larger group, children select a given number and count them out. When asked 'how many?' children should be able to recall the final number they said. Children who have not grasped this principle will recount the whole group again.

The abstraction principle – this involves children understanding that anything can be counted including things that cannot be touched including sounds and movements. When starting to count many children rely on touching the objects in order to count accurately. Teachers can encourage abstraction on a daily basis by counting claps or clicks.

The order-irrelevance principle – this involves children understanding that the order we count a group of objects is irrelevant. There will still be the same number. Encourage children to count objects left to right, right to left, top to bottom, bottom to top. Once children have counted a group, move the objects and ask children how many there are. If they count them all again they have not fully grasped this principle.

Crossacres Long Term Mathematics Plan – EYFS - **Nursery**

Nursery

The development of mathematical knowledge, vocabulary and skills are interwoven throughout the Nursery day, beginning with the 'hello' session at the start of each day. Keyworker group times allow for counting how many children are present, how many are absent. At snack time focus will be given to how many pieces of fruit are needed, do we have enough straws for the milk? Etc.

Visual timelines are used on a daily basis to model and encourage the use of language relating to daily events (snack time, phonics, maths, etc) as each event takes place the visual symbol is removed from the timeline. Language will focus on 'now, after, next'.

Keyworker group calendars will support children in their understanding of the concept of 'time'. Specific events will be recorded on the calendar, such as birthdays and significant events (such as a dress up day), initially basing this on the number of 'sleeps' until an event. At the start of each session, during the 'hello' session the children will sing the 'days of the week' song and talk about which day it is.

How is Maths taught in Nursery?

Each day children access a short (10 minutes) group time that is led by an adult, the session is interactive and allows opportunity to introduce new learning and vocabulary. Throughout each daily session the group practice and consolidate their understanding.

A further mathematical activity is supported by an adult during the day, all children participate in these activities during the week.

The learning environment (inside and outside) provides opportunity for all children to access resources and activities to revisit prior learning to consolidate their skills or to engage in 'open ended' learning, for example sorting with a range of materials or creating new patterns.

Curriculum

The mathematical curriculum is organised into strands of:

Number ***Shape*** ***Measure*** ***Patterns*** ***Space***

Strands of problem solving are woven through approaches to exploring number, shape and measure, as are strands of mathematical reasoning which are developed through talking and investigating mathematical concepts.

The Crossacres Nursery Maths curriculum is designed to develop knowledge, vocabulary and skills that are progressive, enabling children to strengthen their reasoning and problem solving skills. The curriculum is sequenced and clearly identified into 'weeks'. Should children need to continue to have further support with a concept to consolidate learning, the curriculum sequence allows for this to take place.

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Year Group		Autumn	Spring	Summer
Nursery	**Week 1**	Settling in New routines Using numbers in play **Recognising and naming colours -** Red, Blue, Yellow, Green, Orange, Black, Purple, Brown, White	**Composition** – number 3, five frame, 1 to 1 correspondence by movement of objects e.g. 3 cars, 3 keys, 3 stones. Creating and experimenting with marks to represent 3. **Cardinality** - subitising, three or not three? What do you see? How do you see it? **Cardinality** – counting out 3 from a larger group **Counting** - Recite numbers in order to 10 (always start from 1)	**Composition** – number 5, five frame, 1 to 1 correspondence by movement of objects e.g. 5 cars, 5 keys, 5 stones. Creating and experimenting with marks to represent 5. **Cardinality** - subitising, five or not five? What do you see? How do you see it? **Cardinality** – counting out 5 from a larger group **Counting** – Begin to recite backwards from 5. Songs – 5 speckled frogs, 5 currant buns
	Week 2	**Counting** – Songs - 12345, 2 little dickie birds **Recognising, naming and matching colours -** Red, Blue, Yellow, Green, Orange, Black, Purple, Brown, White. Can you find something this colour in the room?	**Counting** - Recite numbers in order to 10, counting song to 10. **Problems** - Show an interest in number problems to 3 - Within play e.g. How many boxes do we need to make a garage for each car? How can we find out? **Cardinality** – subitising 1,2,3 everyday photographs and objects. Recognise and match some number patterns e.g. dice, dot flash cards, dominoes	**Time** – Using the language; 'first, then, next, last'. Sequence getting dressed and other activities. **Counting** – Recite numbers in order to 10, but start at a given number. **Cardinality** – looking at different pictures, or real objects and using subitising skills to answer '3 or not 3', etc to 5.
	Week 3	**Counting** – Songs - Here is the Beehive, 1, 2 Buckle my shoe **Naming, matching and sorting colours -** Red, Blue, Yellow, Green, Orange, Black, Purple, Brown, White (include the use of everyday objects) **Measures** – Recognising attributes – range of objects, children have time to describe and identify - long, tall, short, high, heavy, full, *(not focusing on comparative language).*	**Shape** – showing awareness of similarities of shape in the environment. Matching shapes to a shape card **Shape** – Using 3D shapes and bricks to build, introducing the language: 'straight, flat, round, sides, corners'. **Counting** – reciting numbers to 10 – recognising there is an order to counting (always start from 1)	**Shape** – Identify and describe shapes and how they look: using the words 'straight, flat, round, sides, corners'. Discuss what is the same? What is different? **Shape** - Select 3D shapes appropriately for building. **Counting** - playing track games and counting along the track(to 5)

Crossacres Long Term Mathematics Plan – EYFS - **Nursery**

	Week 4	**Sorting by attribute** - Organise and categorise objects, identifying those that are the same e.g. sort the cars from the bears, odd one out. **Counting songs** – One potato, two potatoes, I can count.. **Counting** – reciting numbers to 5 – recognising there is an order to counting (always start from 1)	**Cardinality** – learn that numbers identify how may objects are in a set (1,2,3) **Comparing** – 1,2,3 Begin to use language of 'same' when comparing small sets e.g. when playing dominoes, roll the dice, snap with dot/object cards **Composition** – 1, 2, 3 explore and notice the different compositions of 2 and 3. **Counting** – reciting numbers to 5 – recognising there is an order to counting (always start from 1)	**Cardinality** – subitising 1,2,3,4,5 using everyday photographs and objects. Recognise and match some number patterns e.g. dice, dot flash cards, dominoes **Comparing** – 1,2,3,4,5 use language of 'same, more than, fewer than' **Counting** - playing dice games to collect a number of things • playing track games and counting along the track.
	Week 5	**Composition –** number 1, five frame. 1 to 1 correspondence by movement of objects e.g. 1 spoon for each toy, 1 peg in each box. Creating and experimenting with marks to represent 1. **Cardinality** - subitising, one or not one? What do you see? How do you see it? **Cardinality** – counting out 1 from a larger group **Counting** – Songs - Peter hammers with one hammer, One man went to mow. One big hippo balancing	**Comparison** – comparing quantities 'more than', 'fewer than' Use full sentences when comparing sets e.g. there are more cars than boats **Counting** – Songs - 5 little ducks, 5 little frogs, 5 men in a flying saucer **Comparison** – Understand 'how many are left' from number rhymes experiences. Begin to use the word 'less' when acting out	**Measure** – Weight (heavy/light)- Introduce and categorise according to weight. Finding something heavy, something light. Place a carrier bag in each hand and identify which one is heavier, by discussing which arm feels more pulled down. **Cardinality** – Subitising - 4 or not 4? Etc to 5. What do you see? How do you see it?
	Week 6	**Shape** - Noticing shapes in pictures, constructing using shapes, matching shapes, fitting objects into boxes. Identifying the odd one out. *Circles, triangles, squares, rectangles.* What is the same? What is different? **Counting** – reciting numbers to 5 – recognising there is an order to counting (always start from 1)	**Measure** – Length (long/short) – Introduce and categorise according to length. Can the stick fit in the box? Why not? Finding objects that are longer/shorter. **Experimenting with numbers** – use numerals/numbers purposefully – telephone numbers, candles….	**Composition** – partitioning 3, 4 or 5 objects into two groups, but understand there is still the same amount. **Composition** – Number bonds to 5 **Counting** – not only objects that can be counted, so can steps, claps, jumps, etc.

Crossacres Long Term Mathematics Plan – EYFS - **Nursery**

	Week 7	**Composition** – number 2, five frame. 1 to 1 correspondence by movement of objects e.g. 2 cars, 2 bricks, rearrange the placement there is still only 2. Creating and experimenting with marks to represent 2. **Cardinality** - Subitising, two or not two? What do you see? How do you see it? **Cardinality** - Begin to represent numbers, using fingers. Counting out 2 from a larger group. **Counting** – Songs - one tomato, two tomatoes, one finger, one thumb.	**Composition** – number 4, five frame. 1 to 1 correspondence by movement of objects e.g. 4 cars, 4 keys, 4 stones. Creating and experimenting with marks to represent 4. **Cardinality** - subitising, four or not four? What do you see? How do you see it? **Cardinality** – counting out 4 from a larger group **Counting** – not only objects that can be counted, so can steps, claps, jumps, chimes on clock.	**Space** –discussing the location of objects showing understanding of words alone 'off, down, up, across, under, on' (no pointing). **Space** - Describing a familiar route. **Counting** – by rote to 10 from a given number
	Week 8	**Patterns** - AB patterns (continuing a pattern)– talk about what they can see and continue a pattern, verbalising the pattern. Building towers or trains using coloured cubes (vertically and horizontally) Extend to using identical objects in different colours (bears, vehicles, etc) **Counting** – Songs - one tomato, two tomatoes, one finger, one thumb.	**Pattern** – AB pattern (make their own pattern) – patterns can involve different aspects and modes, including sounds, words and actions. Pattern to be repeated at least 3 times. Can they make a specified pattern? Can they choose their own rule? **Counting** – finger numbers to 5, using both hands	**Pattern** – AB pattern (spotting errors). Notice and correct an error in a repeating pattern. Begin with an extra item, then a missing item, then items swapped around. **Patterns** – Exploring patterns in everyday object, clothing, environment – naming the patterns (stripy, spotty, squares, flowers) **Counting** – finger numbers to 5, using both hands
	Week 9	**Measures** – (big/small) – Introduce and categorise objects according to size. Finding the 'odd one out' Can teddy fit in the box? Why not? Finding objects that will fit in a matchbox **Space** – understand and use 'in, on, under, next to' **Counting** – reciting numbers to 5 – recognising there is an order to counting	**Cardinality** – linking numerals and amounts 1234 **Cardinality** – counting up to 4 objects but understanding that the last number said, is how many in total. **Counting** – by rote to 10	**Comparison** - How can we solve problems? Using numbers to 5 - Within play e.g. There are four of you but aren't enough chairs? What will we do? Two boxes of sweets with different quantities – which would you have? Why? **Shape** – combine shapes to make new ones, making an arch or a bigger triangle. **Shape** – use shapes to build for a purpose. **Counting** – finger numbers to 5, using both hands
	Week 10	**Counting rhymes** –5 currant buns, 5 little fireman	**Measure** – Capacity (full/empty) Introduce language and participate in filling and	**Measure** – Height (tall/short) Introduce and categorise objects according to height.

Crossacres Long Term Mathematics Plan – EYFS - **Nursery**

		Comparison - Knowing quantities change when something is added or taken away. **Cardinality** – Objects of different size, sounds, actions, words. Find me one, two games. **Cardinality** – Subitising - 2 or not 2? What do you see? How do you see it? **Counting** – reciting numbers to 5 – recognising there is an order to counting (always start from 1)	emptying containers with sand/rice. Finding the odd one out. Can this ball go in this container (full) why not? Extend to containers with other materials (sweets, cereal, pencils) **Counting** – by rote to 10 from a given number	Finding the 'odd one out'. Can the giraffe fit under the bridge? Why not? Finding objects that are tall/short. **Counting** – not only objects that can be counted, so can steps, claps, jumps, etc.
	Week 11	**Pattern** – AB patterns (copying a pattern) (verbally and practically), naming the pattern. Accessing a range of patterns: big/small, leaf/stick, shoe/welly, jump/twirl, etc. **Counting** – reciting numbers to 10 – recognising there is an order to counting (always start from 1)	**Composition** – partitioning 3 or 4 objects into two groups, but understand there is still the same amount. **Comparison** – compare two groups of objects, saying when they have the 'same' number. Experiment with their own symbols and marks as well as numerals. **Cardinality** – linking numerals and amounts 1,2,3,4 **Counting** – by rote to 10, jumping along the number track	**Comparison –** comparing quantities 'more and less'. Experimenting with numbers – represent numbers to 5, using fingers and marks on paper to represent quantity. **Counting** – finger numbers to 5, using both hands
	Week 12	**Composition** - Begin to recognise and match some early number patterns e.g. dice, dot flash cards, dominoes Begin to compare two groups of objects, saying when they have more. **Comparison** - Comparing amounts of objects **Cardinality -** Begin to know that numbers identify how many objects are in a set. **Counting** – Songs - 5 fat sausages, 5 Christmas puddings	**Space** – understand and use 'up, down, across, above, over'. **Space** - Understand and follow 'forwards, backwards' **Counting** – by rote to 10 from a given number	**Consolidation –** Developing reasoning and 'trial and error' **Counting –** counting to 10 - help the puppet, which number does he miss out? **Cardinality** – what a muddle! Containers with numbers on and five frames (1-5) how can we make sure the correct number of items are in each? **Cardinality** – Track game – children to make up the rules (1-5)

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		Counting – reciting numbers to 5 – recognising there is an order to counting (always start from 1)		
By the end of the Term children should be able to:		• Be able to count by rote to 5 • Recognise and name colours: Red, Blue, Yellow, Green, Orange, Black, Purple, Brown, White • Copy a 2 part pattern. • Understand and use the language 'in, on, under' • Understand and use the language 'big/small' • Sort objects by different attributes • Give 1 or 2 objects on request • Recognise 1 or 2 objects by subitising • Identifying and naming shapes: squares, rectangles, circles, triangles	• Be able to count by rote to 10 • Continue a 2 part pattern • Link numerals and quantities to 4 • Recognise up to 3 objects without counting • Say one number for each item in order to 5 • Be able to describe 2D shapes; curved, straight, sides • Make comparisons between objects relating to height and capacity	• Be able to understand position through words alone • Compare quantities using 'more than, fewer than'. • Show finger numbers up to 5 • Describe a sequence of events using 'first, then' • Create a 2 part pattern • Make comparisons between objects relating to length and weight • Make their own marks and number symbols • Identify and describe shapes and how they look: using the words 'straight, flat, round, sides, corners'.