

Early Years Foundation Stage

Maths Progression



Programme of Study - Statutory Framework 2021

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.

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(James, Putting the Early Years into Practice, p.70, 2023)

10 Core Rhymes

Nursery have created resources for a set of '10 Core Rhymes' they believe all children should know by the end of their Nursery Year. These are used in small groups and as a whole class. They include rhymes like: 5 Little Speckled Frogs, 5 Little Ducks, 5 Little Monkeys etc.



Maths Through Stories



Nursery rhymes, books and traditional tales are used to deepen children's understanding of number e.g. The Nursery team plan in a range of activities linked to traditional tales that include 3 bears, 3 goats and 3 pigs. They explore what 3 looks like through pictures, models and a variety of representations.

Other recommended texts:

What's the Time, Mr Wolf?	The Great Pet Sale
How many Seeds in a Pumpkin?	5 Minutes Peace
One is a Snail, Ten is a Crab	Who Sunk the Boat?
On the Launch Pad	There's a hole in my Bucket.

Subitising

Subitising supports counting and is the foundation of calculation fluency. Through this method pupils will understand how numbers can be decomposed and recomposed into and from parts (essential for addition, subtraction, multiplication and division).

Subitise comes from the Latin 'to arrive suddenly'. Subitising is the ability to quickly recognise and say the number of things without counting.

Perceptual subitising: when you 'just see' how many items there are in in a very small collection, you are perceptual subitising. **Conceptual subitising:** this involves seeing the parts and putting together the whole. For example, when you see a domino, you might see two groups of 4 as one 8.

Teaching Approaches

Fluency is achieved in Maths when we skillfully combine four approaches to teaching:

Teacher Directed: Where we teach the new tools and model how to apply them meaningfully

Teacher-Led: Where we sharpen new tools and invite children to have more control over how and the problems we solve using them

Child-led: When the children decide when to use the tools we have given them (and the problems they wish to solve) and they invite us to learn alongside them

Child-intiated: Where the child uses their tools alone or with other children and does not want or need the intervention of an adult *(Wilding, EY Maths 3-5, 2023)*

In the Early Years there is a strong focus on the composition of numbers to 10 and the following characterises our teaching:

Particularly focussing on 2, 3, 4 and 5 before moving onto larger numbers Lock carefully. What do you notice? What do you see?

We provide a range of visual models of numbers









Model conceptual subitising



Emphasise the parts within the whole





Plan games which involve partitioning and recombining sets

Encourage children to notice and reflect on maths in their play and everyday routines









Reception Year are following the NCETM Mastering Number Programme

https://axis.ncetm.org.uk/mastering-number/overview-of-content/

NCETM (National Centre for Excellence in the Teaching of Mathematics)

At the Federation, we use the **NCETM Programme** to support us with our teaching of Maths. The research based programme is broken up into 6 key areas of mathematical learning, which collectively provide a platform for everything children will encounter as they progress through their maths learning at primary school and beyond.



NATIONAL CENTRE FOR EXCELLENCE IN THE TEACHING OF MATHEMATICS A core part of this learning (included in every NCETM lesson) is engaging children in sustained back-and-forth conversations in which children are encouraged to talk about their strategies to solve number problems. This is often modelled through sentence stems and 'What do you see' discussions.

Shape, Space and Measure

https://www.ncetm.org.uk/media/5csbtyon/typical-progression-pattern.pdf

- Select, rotate and manipulate shapes to develop spatial reasoning skills.
- Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.
 - Continue, copy and create repeating patterns.
 - Compare length, weight and capacity.





Maths Yearly Overview - Nursery and Reception

Exploring repeating patterns with lollipop sticks, inspired by Rangoli Art (Diwali).

	Nursery Autumn	Nursery Spring	Nursery Summer	Reception Autumn	Reception Spring	Reception Summer
Finding Mathematical moments in the day	Counting how many children are in, using 5s frames for self registering, counting out snacks, looking at the sequence of the day using visual timetables (sequencing events - next, after, before), using the clock to talk about time, problem solving e.g. there are too many people in the role play corner so how can we sort this problem out?					
	Number songs/rhymes	Subitising- develop recognition of up to 3 objects.	Experiment with their own symbols	Follow NCETM Planning - see below	Follow NCETM Planning - see below	Follow NCETM Planning - see below

Number books Recite numbers past 5 Say one number for each item in order	Know that the last number reached when counting tells you the total quantity (Cardinal Principle)	and marks as well as numerals. Solve mathematical problems with numbers up to 5 - role play contexts and stories	Subitising/ building a deep understanding of numbers to 5 Number songs/rhymes	Subitising Compare quantities up to 10 Count objects to 10 and beyond	Building a deep understanding of numbers to 10 Doubling, halving and sharing
Show fingers up to Subitising- develop recognition of up to 3 objects.	amounts Compare quantities using language more than, fewer than. Experiment with their own symbols. Understand position through words alone – for example, "The bag is under the table," – with no pointing. Talk about and identify the patterns around	Compare quantities using language more than, fewer than. Talk about characteristics of shapes. USe informal and mathematical language. Extend and create ABAB patterns – stick, leaf, stick, leaf. Notice and correct an error in a repeating pattern.	Length, weight, height, capacity 2D shape Select, rotate and manipulate shapes in order to develop spatial reasoning skills. Compose and decompose shapes eg: investigate how shapes can be combined to make new shapes eg: 2 triangles can be put together to make a square.	Number Bonds to 5 Addition Subtraction Money Estimating - problem solving 3D shape	collecting information and recording it Time Ordering and sequencing familiar events

	them. For example: stripes on clothes, designs on rugs and wallpaper. Use informal language like 'pointy', 'spotty', 'blobs', etc. Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then' e.g. Talk for Writing vocabulary linked to actions.	Describe a familiar routine e.g. referring to visual timetable Discuss routes and locations e.g. 'What the Ladybird Heard' Make comparisons between objects relating to size, length, weight and capacity e.g. through cooking Select shapes appropriately for building Combine shapes to make bigger ones	Repeating patterns Counting verbally Count objects, actions and sounds. Number recognition Use 5 frames Count objects to 10 and beyond	

Number ELG

Children at the expected level of development will:

 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.

Numerical Patterns ELG

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.



Strand/ Subitising Comparison Half-term 1 perceptually subitise within 3 relate the counting sequence to see that all numbers can understand that sets can be ٠ identify sub-groups in larger cardinality, seeing that the last be made of 1s compared according to a ٠ Children arrangements number spoken gives the number in compose their own range of attributes, including will: the entire set collections within 4. by their numerosity create their own patterns for ٠ numbers within 4 . have a wide range of opportunities to . use the language of develop their knowledge of the comparison, including 'more practise using their fingers to counting sequence, including through than' and 'fewer than' represent quantities which they rhyme and song compare sets 'just by looking'. can subitise ٠ have a wide range of opportunities to experience subitising in a range of ٠ develop 1:1 correspondence. contexts, including temporal including by coordinating movement patterns made by sounds. and counting ٠ have opportunities to develop an understanding that anything can be counted, including actions and sounds explore a range of strategies which . support accurate counting. 2 continue from first half-term continue to develop their counting explore the concept of compare sets using a variety ٠ ٠ ٠ ٠ skills 'wholes' and 'parts' by of strategies, including 'just by subitise within 5, perceptually and Children looking', by subitising and by conceptually, depending on the explore the cardinality of 5, linking this looking at a range of ٠ will: objects that are composed matching arrangements. to dice patterns and 5 fingers on 1 of parts, some of which hand compare sets by matching. ٠ begin to count beyond 5 can be taken apart and seeing that when every object some of which cannot in a set can be matched to begin to recognise numerals, relating explore the composition of . one in the other set, they these to quantities they can subitise numbers within 5. contain the same number and and count. are equal amounts. 3 increase confidence in subitising ٠ continue to develop verbal counting to . continue to explore the continue to compare sets ٠ ٠ by continuing to explore patterns 20 and beyond composition of 5 and using the language of Children within 5, including structured and practise recalling 'missing' comparison, and play games continue to develop object counting ٠ will: random arrangements skills, using a range of strategies to or 'hidden' parts for 5 which involve comparing sets develop accuracy

Mastering Number: Overview of content - Reception

	 explore a range of patterns made by some numbers greater than 5, including structured patterns in which 5 is a clear part experience patterns which show a small group and '1 more' continue to match arrangements to finger patterns. 	 continue to link counting to cardinality, including using their fingers to represent quantities between 5 and 10 order numbers, linking cardinal and ordinal representations of number. 	 explore the composition of 6, linking this to familiar patterns, including symmetrical patterns begin to see that numbers within 10 can be composed of '5 and a bit'. 	 continue to compare sets by matching, identifying when sets are equal explore ways of making unequal sets equal. 			
4 Children will:	 explore symmetrical patterns, in which each side is a familiar pattern, linking this to 'doubles'. 	 continue to consolidate their understanding of cardinality, working with larger numbers within 10 become more familiar with the counting pattern beyond 20. 	 explore the composition of odd and even numbers, looking at the 'shape' of these numbers begin to link even numbers to doubles begin to explore the composition of numbers within 10. 	 compare numbers, reasoning about which is more, using both an understanding of the 'howmanyness' of a number, and its position in the number system. 			
5 Children will:	 continue to practise increasingly familiar subitising arrangements, including those which expose '1 more' or 'doubles' patterns use 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. 	 continue to develop verbal counting to 20 and beyond, including counting from different starting numbers continue to develop confidence and accuracy in both verbal and object counting. 	 explore the composition of 10. 	 order sets of objects, linking this to their understanding of the ordinal number system. 			
6	6 In this half-term, the children will consolidate their understanding of concepts previously taught through working in a variety of contexts and with different numbers.						