



Stapleford Community
Primary School

Ambitious Caring Excellence

Foundation Stage Maths

White Rose Scheme of learning and the NCETM supporting materials



NCETM

NATIONAL CENTRE FOR EXCELLENCE
IN THE TEACHING OF MATHEMATICS



This document includes our long term plan for the year which is aligned with the White Rose Scheme of Learning and the NCETM. At Stapleford we follow teaching for mastery and these materials and tools are used to guide our planning to ensure lessons build gradually and demonstrate coherence. We use progression documents to help us ensure learning follows on from what has come before and aim to develop cross curricular links with other subjects and across math topics to deepen learning. We also use Nrich regularly to reinforce learning and promote fluency of number and problem solving and reasoning.

Nursery

In the Nursery our main focus is play based learning and incorporating Maths skills within children's play on a daily basis. Alongside this, we incorporate three Maths circle times per week to teach new Maths skills such as counting, recognising numbers and shape, space and measure.

	You Choose						Pumpkin Soup					
	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
A U T U M N	Introduce children to areas of provision and settling in period. Introduce Maths through daily nursery rhymes e.g. five little ducks, 5 speckled frogs. Introduce the visual timetable for understanding about different parts of our daily routine.			Recognise up to 3 objects. Recite numbers to 10. Show 'finger numbers' up to 5. Introduce 2D shapes.			Comparisons relating to capacity. Talk about and identify the patterns around them. Know that the last number reached when counting a small set of objects tells you how many there are in total.			Recognising up to 3 objects. Reciting numbers to 10. Know that the last number reached when counting a small set of objects tells you how many there are in total/		
	Revisit prior learning of counting and number recognition.			Say one number for each item in order: 1,2,3,4,5. Extend to 2D and 3D shapes. Show finger numbers up to 10. Compare quantities using more than and fewer than language.			Comparisons relating to capacity. Extend to ABAB patterns.			Solve real world mathematical problems with numbers up to 5.		

	We're Going on a Bear Hunt						Jack and the Beanstalk					
	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
S P R I N G	Discuss routes and locations, using words like 'in front of' and 'behind.' Talk about and identifies the patterns around them. Describe a familiar route.			Recognising up to 3 objects. Reciting numbers to 10. Know that the last number reached when counting a small set of objects tells you how many there are in total, show fingers numbers up to 5, link			Comparisons relating to size. Solve real world mathematical problems with numbers up to 5.			Experiment with their own symbols and marks as well as numerals. Talk about and explore 2D and 3D shapes.		

		numbers and amounts.		
	<p>Talk about and identify the patterns around them. Extend to ABAB patterns.</p> <p>Understand position through words alone – for example, “The bag is under the table,” – with no pointing.</p>	<p>Experiment with their own symbols and marks as well as numerals.</p>	<p>Comparisons relating to size.</p> <p>Solve real world mathematical problems with numbers up to 5.</p>	<p>Talk about and explore 2D and 3D shapes.</p> <p>Comparisons relating to size.</p> <p>Experiment with their own symbols and marks as well as numerals.</p>

	The Very Hungry Caterpillar						The Rainbow Fish					
	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
SUMMER	<p>Talk about and identify the patterns around them. Extend to ABAB patterns.</p> <p>Begin to describe a sequence of events, real or fictional, using words such as ‘first’, ‘then...’</p>			<p>Compare quantities using more than and fewer than language.</p> <p>Make comparisons between objects relating to weight.</p>			<p>Develop fast recognition of up to 3 objects, without having to count them individually (‘subitising’).</p>			<p>Talk about and explore 2D and 3D shapes.</p> <p>Make comparisons between objects relating to capacity.</p>		
	<p>Compare quantities using language: ‘more than’, ‘fewer than’.</p> <p>Notice and correct an error in a repeating pattern.</p> <p>Solve real world mathematical problems with numbers up to 5.</p>			<p>Compare quantities using more than and fewer than language.</p> <p>Make comparisons between objects relating to weight.</p>			<p>Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5.</p> <p>Develop fast recognition of up to 3 objects, without having to count them individually (‘subitising’).</p>			<p>Talk about and explore 2D and 3D shapes.</p> <p>Make comparisons between objects relating to capacity.</p>		

Reception Foundation Stage

This [link](#) includes links to the White Rose powerpoint images

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
A U T U M N	Getting to know you			Just like me			It's me 1, 2, 3!			Light and Dark		
	<p>Opportunities for settling in, introducing the areas of provision and getting to know the children.</p> <p>Key times of the day, class routines. Exploring the continuous provision inside and out. Where do things belong? Positional language,</p>			<p>Number:</p> <ul style="list-style-type: none"> - Match and sort - Compare amounts <p><u>Measure, Shape and Spatial thinking:</u></p> <ul style="list-style-type: none"> - Compare size, mass and capacity - Exploring pattern 			<p>Number:</p> <ul style="list-style-type: none"> - Representing 1, 2 and 3 - Comparing 1, 2 and 3 - Composition of 1, 2 and 3 <p><u>Measure, Shape and Spatial thinking:</u></p> <ul style="list-style-type: none"> - Circles and triangles - Positional language 			<p>Number:</p> <ul style="list-style-type: none"> - Representing numbers to 5 - One more and less <p><u>Measure, Shape and Spatial thinking:</u></p> <ul style="list-style-type: none"> - Shapes with 4 sides - time 		

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
S P R I N G	Alive in five			Growing 6, 7, 8			Building 9 and 10			Consolidation		
	<p>Number:</p> <ul style="list-style-type: none"> - Introducing zero - Comparing numbers to 5 - Composition of 4 and 5 <p><u>Measure, Shape and Spatial thinking:</u></p> <ul style="list-style-type: none"> - Compare mass (2) - Compare capacity (2) 			<p>Number:</p> <ul style="list-style-type: none"> - 6, 7 and 8 - Making Pairs - Combining 2 groups <p><u>Measure, Shape and Spatial thinking:</u></p> <ul style="list-style-type: none"> - Length and height - time 			<p>Number:</p> <ul style="list-style-type: none"> - 9 and 10 - Comparing numbers to 10 - Bonds to 10 <p><u>Measure, Shape and Spatial thinking:</u></p> <ul style="list-style-type: none"> - 3D shape - Pattern (2) 					

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
S U M M E R	To twenty and beyond			First, then, now			Find my pattern			On the move		
	Number:			Number:			Number:			Number:		
	- Building numbers beyond 10			- Adding more			- Doubling			- Deepening understanding		
	- Counting patterns beyond 10			- Taking away			- Sharing and grouping			- Patterns and relationships		
	Measure, Shape and Spatial thinking:			Measure, Shape and Spatial thinking:			Measure, Shape and Spatial thinking:			Measure, Shape and Spatial thinking:		
	- Spatial reasoning (1)			- Spatial reasoning (2)			- Spatial reasoning (3)			- Spatial reasoning (4)		
	- Match, rotate, manipulate			- Compose and decompose			- Visualise and build			- Mapping		

To support the progression of understanding within these areas and early math. The NCETM have developed materials to support understanding of the progression within 6 key areas of Early Mathematics learning. These can be used in conjunction with the White Rose Materials and structure (shown above) to ensure secure mathematical development.

Six key areas of Early mathematics learning:

- [Cardinality and counting progression](#)
- [Composition progression](#)
- [Comparison progression](#)
- [Pattern progression](#)
- [Shape and space progression](#)
- [Measures Progression](#)

Research has highlighted the importance of spatial reasoning as a precursor to future maths learning. We recognise how valuable these skills are and provide activities to support this.

- [Spatial reasoning in early childhood](#)

- [Early Childhood Toolkit - spatial reasoning](#)

Foundation Stage Maths - Programme of Study

Taken from the [National Curriculum](#)

Early years foundation stage (EYFS) statutory framework *(by Sept 2021)*

The standards that school and childcare providers must meet for the learning, development and care of children from birth to 5.

The EYFS specifies requirements for learning and development and for safeguarding children and promoting their welfare. The learning and development requirements cover:

- the areas of learning and development which must shape activities and experiences (educational programmes) for children in all early years settings
- the early learning goals that providers must help children work towards (the knowledge, skills and understanding children should have at the end of the academic year in which they turn five)
- assessment arrangements for measuring progress (and requirements for reporting to parents and/or carers)

There are seven areas of learning and development that must shape educational programmes in early years settings. All areas of learning and development are important and inter-connected.

Three areas are particularly important for building a foundation for igniting children's curiosity and enthusiasm for learning, forming relationships and thriving. These are the prime areas:

- communication and language
- physical development
- personal, social and emotional development

Providers must also support children in four specific areas, through which the three prime areas are strengthened and applied. The specific areas are:

- literacy
- mathematics
- understanding the world
- expressive arts and design

Mathematics

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.

Mathematics ELG: Number

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.

ELG: 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.

Note:

Even though geometry no longer features as an ELG. It is a vital area of early years education and still features in Development matters. Research has demonstrated that spatial understanding has a significant impact on children's development of mathematical understanding. Attention should be focused on ensuring all children have opportunities to develop this. See:

<https://nrich.maths.org/14544>

<https://www.cambridgemaths.org/espresso/view/spatial-skills/>

Progression documents

These progression documents are from this [source](#). They contain suggested non-statutory guidance material that supports practitioners in implementing and assessing the statutory requirements of the EYFS. Add new development matters and progression. Although the early learning goals have changed. At present, we are using this framework as a further tool to inform and ensure focus is still being applied to geometry and measure. It uses geometry (still using). Maybe get rid of number

Mathematics

Birth to 3

3- 4

Reception

<p>Mathematics</p> <ul style="list-style-type: none"> Combine objects like stacking blocks and cups. Put objects inside others and take them out again. Take part in finger rhymes with numbers. React to changes of amount in a group of up to three items. Compare amounts, saying 'lots', 'more' or 'same'. Develop counting-like behaviour, such as making sounds, pointing or saying some numbers in sequence. Count in everyday contexts, sometimes skipping numbers - '1-2-3-5.' Climb and squeeze themselves into different types of spaces. Build with a range of resources. Complete inset puzzles. Compare sizes, weights etc. using gesture and language - 'bigger/little/smaller', 'high/low', 'tall', 'heavy'. Notice patterns and arrange things in patterns. 	<p>Mathematics</p> <ul style="list-style-type: none"> 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. 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'. 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'. 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'. Make comparisons between objects relating to size, length, weight and capacity. 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. Talk about and identifies 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. 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...' 	<p>Mathematics</p> <ul style="list-style-type: none"> Count objects, actions and sounds. Subitise. Link the number symbol (numeral) with its cardinal number value. Count beyond ten. Compare numbers. Understand the 'one more than/one less than' relationship between consecutive numbers. Explore the composition of numbers to 10. Automatically recall number bonds for numbers 0-5 and some to 10. Select, rotate and manipulate shapes to develop spatial reasoning skills. Compose and decompose shapes so that children recognise a shape can have other shapes <i>within it</i>, just as numbers can. Continue, copy and create repeating patterns. Compare length, weight and capacity.
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Foundation Stage Maths - Cross curricular maths

For both the nursery and Reception Foundation Stage, cross curricular maths is embedded across the curriculum. These are examples of how it is incorporated into other subjects.

Reception

- There are opportunities for maths throughout the day. At the start of the day, we talk about what the day and the date is and what is for lunch. The children will count how many children are having each lunch option. We have begun to use a tally chart system to record the lunches. We talk about how many children are here and how many children are away. We will then look at the number line and discuss one/two less etc. We have recently started to talk about a number as tens and ones so some

children are now describing the number as two tens and seven ones etc. When we move around the school (e.g. to visit the moat) we will count all the children to make sure we have everyone. We often use puzzles, shapes, peg boards and pattern resources for funky finger activities in the morning. For turn taking the children will use the timers to time each other when using popular resources e.g. bikes. Throughout the day we refer to the time for lunch and home time. Some children enjoy setting the table in the role play for different number of children.

Nursery

- Maths is embedded within our daily routine. At the start of the day we say what day it is and sing the days of the week song, using our fingers for counting the days whilst singing. We count how many children are here and identify the numeral to put on display so everyone knows how many children are at Nursery and what the number looks like. We also do the lunch register and display the lunch options on the smartboard. The LSA in the room will show a tally of the children's lunch choices on the board. At the end we ask the children to tell us how many children have chosen each option and the LSA will write the numerals underneath.
- In Literacy we provide books with numbers and counting.
- We create cross curricular links between Maths and Art, for example using shapes for printing.
- In our weekly PE sessions we do warm up exercises which we count as we do them e.g. 10 jumping jacks, so that children are gaining an understanding of counting in relation to actions as well as objects.

Outdoor maths resources

[Learning through landscapes - open up outdoors mathematics](#)



Foundation Stage - Nrich

This is an approximate guide. More activities can be included but those listed below. Activities are broadly linked to an area of maths but many can be used in multiple ways and for multiple topics.

Place Value

Including activities relating to: counting, sorting and describing; recognising and describing patterns of number; estimating; understanding cardinal numbers and matching numerals and amounts.

Incey Wincey	Number Book	Hidden Jewels	Number Talks	Number Rhymes	Shopping - Pirate Poundland	Golden Beans
Using Books: Maisy Goes Camping	Dice	Show Me	Tidying	Estimation Station	Owl's Packing List	The Voting Station

Addition and subtraction

The Box Game						
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Measure

Including activities relating to: comparing lengths using non-standard measures; using everyday language to talk about size, exploring characteristics of objects and using mathematical language to describe them; comparing weights using non-standard measures; using everyday language to describe and compare quantity, size, weight, capacity; position and timing using non-standard and standard devices.

Making Caterpillars	Long Creatures	Sock Washing Line	Wrapping Parcels	Presents	I Have a Box	Mud Kitchen
Cooking with Children	Balances	Water, Water ...	The Spring Scale	Timing		

Geometry

Including activities relating to: making and describing pattern; exploring the characteristics of everyday objects and shapes and using mathematical language to describe them; creating and describing patterns, counting and comparing numbers; describing and comparing 2D shapes; understanding the characteristics of 2D shapes and exploring 3D shapes

Pattern Making	Collecting	Exploring 2D Shapes	Making a Picture	Shapes in the Bag	Making Footprints	Tubes and Tunnels
Building Towers	Paths	Position with Wellies	Scooters, Bikes and Trikes	Small World Play		

Useful documents

- [Numbers and Patterns: laying foundations in mathematics](#)
- [Improving Mathematics In The Early Years And Key Stage 1 \(guidance report\)](#)
- [Big Ideas of early math \(early math collaborative\)](#)
- [National strategies: Children thinking mathematically: PSRN essential knowledge for Early Years practitioners](#)
- [NCETM Numberblocks supporting materials](#)

Early Years Books (for children)

Alborough.J (2007) / Washing Line / Walker 140631076X, 978-1406310764

Beaton.C and Blackstone.S (2002) / How Big Is a Pig? / Barefoot Books Ltd. 1841489581, 978-1841489582

Boucher.C, Turpin.C and Merriman.R (1999) / *The Six Blind Men and the Elephant* / Walker Books Ltd. 0744568072, 978-0744568073
Browne.A (2008) / *Changes* / Walker 1406313394, 978-1406313390
Carle.E (1994) / *The Very Hungry Caterpillar* / Puffin 0241003008, 978-0241003008
Carle.E (2007) / *Opposites* / Grosset & Dunlap 0448445654, 978-0448445656
Crowther.R (2005) / *Opposites* / Walker Books Ltd. 1844288552, 978-1844288557
Freedman.C and Cort.B (2007) / *Aliens Love Underpants!* / Simon & Schuster Children's 1416917055, 978-1416917052
Hughes.S (2001) / *All Shapes and Sizes* / Walker Books Ltd. 0744569826, 978-0744569827
Hutchins.P (1997) / *Titch* / Red Fox 0099262533, 978-0099262534
Inkpen. M (1994) / *Kipper's Book of Opposites* / Hodder Children's Books 0340598492, 978-0340598498
Inkpen.M (2006) / *The Blue Balloon* / Hodder Children's Books 0340918195, 978-0340918197
Sharratt.N (2003) / *My Mum and Dad Make Me Laugh* / Walker Books Ltd. 0744594995, 978-0744594997