Mathematics Curriculum Overview

Nursery Mathematics

Department for Education Educational Programme	Our School Personal, Social and Emotional Development Curriculum	
Development Matters (Non-statutory) Nursery Year	**What?**	**When?**
→ 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 a number of 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. 	**Autumn 2** The story of 3-Goldilocks, Three Billy Goats Gruff, The Three Little Pigs, Baa baa black sheep Using numicon and Hungarian number frames **Autumn 2 Daily maths session** 'It's Me 1,2,3' Unit-White Rose Maths **Spring 2 Daily maths session** 'Alive in 5' unit week 1 and 2-White Rose Maths **Daily** Nursery rhyme and number songs Snack time- counting the fruit, cups and mats Ongoing adult modelling counting through play in continuous provision
→ 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 Adam has got more crackers…" - support children to solve problems using fingers, objects and marks: "There are four of you, but there aren't enough	**Spring 1 Daily maths session** Activity week-White Rose Maths linked to snow 'Light and Dark' Unit Week 1 and 2-White Rose Maths **Spring 2 Daily maths session** 'Alive in 5' unit week 1 and 2-White Rose Maths **Summer 1 Daily Maths session**

			chairs…." - draw children's attention to differences and changes in amounts, such as those in stories like 'The Enormous Turnip'. 	==‘Growing 6,7,8’ unit week 1 and 2-White Rose Maths== Exploring numbers beyond 5 **Summer 2 Daily Maths session** ==‘Building 9&10’ unit week 1 and 2-White Rose Maths== **Daily** Problem solving during snack time and play situations. Core book-One Mole Digging a Hole
	→ 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==’.	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==." 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 out to shops or the park: 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, such as ‘Rosie's Walk. 	**Spring 1 Daily maths session** ==‘Light and Dark’ Unit Week 3-White Rose Maths== **Summer 2 Daily Maths session** ==‘Building 9&10’ unit week 3-White Rose Maths== Exploring 3 D shapes **Ongoing daily** Block area in the environment. Shape sorters added to environment. Modelled language during play inside and outside. Core book-We're Going on a Bear Hunt **Autumn1** 3 Billy Goats gruff story. Visit to the library- create maps. **Summer 2** You Can't Catch Me! Maths through story linked to the Gingerbread man Rosie's walk story.

	→ Make comparisons between objects relating to size, length, weight and capacity.	Recognise same and different objects, Use vocabulary 'same and 'different' 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…?"	**Daily** Opportunities in the environment-water play, playdough, construction. **Autumn1 Daily maths session** 'Just Like Me' unit-White Rose Maths Comparing light, size, shape and colours **Spring 2 Daily maths sessions** 'Alive in 5' Week 3 Comparing weight **Summer 1 Daily Maths session** 'Growing 6,7,8' unit week 3-White Rose Maths Comparing shorter, taller
	→ 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. 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?"	**Spring 1 Daily maths session** 'Light and Dark' Unit Week 3-White Rose Maths Daily opportunities in the environment-silhouettes to match back shapes, construction area, den making
	→ 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. → Notice and correct an error in a repeating pattern.	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.	**Autumn1 Daily maths session** 'Just Like Me' unit-White Rose Maths **Summer 1 What's in a Rainbow** Maths through story-Nick Sharrat; My Mum and Dad Make Me Laugh, Pants, Press Here

	→ Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...'	Talk about patterns of events, in cooking or getting dressed. Suggestions: - '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'	
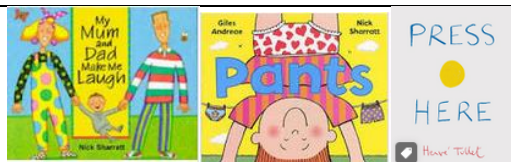
Reception Mathematics

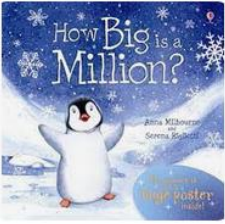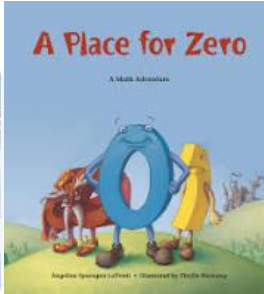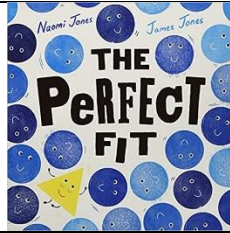| Department for Education Educational Programme	Our School Personal, Social and Emotional Development Curriculum		
Development Matters (Non-statutory) Reception Year **Early Learning Goals (Statutory) End of Reception**	**What?**		**When?**
	• Count objects, actions and sounds. • Have a deep understanding of number to 10, including the composition of each number.	Develop the key skills of counting objects including saying the numbers in order and matching one number name to each item. Say how many there are after counting - for example, "…6, 7, 8. There are 8 balls" - to help children appreciate that the last number of the count indicates the total number of the group. This is the cardinal counting principle. Say how many there might be before you count to give a purpose to counting: "I think there are about 8. Shall we count to see?" Count out a smaller number from a larger group: "Give me seven…" Knowing when to stop shows that children understand the cardinal principle. Build counting into everyday routines such as register time, tidying up, lining up or counting out pieces of fruit at snack time. Sing counting songs and number rhymes, and read stories that involve counting. Play games which involve counting. Identify children who have had less prior experience of counting, and provide additional opportunities for counting practice.	Using the Power Maths Guidance and curriculum plan. Have continuous and enhanced provision to support development and learning. Mastering Number- 4 sessions per week.

	• Link the number symbol (numeral) with its cardinal number value.	Display numerals in order alongside dot quantities or tens frame arrangements. Play card games such as snap or matching pairs with cards where some have numerals and some have dot arrangements. Discuss the different ways children might record quantities (for example, scores in games), such as tallies, dots and using numeral cards.	
	• Subitise (recognise quantities without counting) up to 5;	Show small quantities in familiar patterns (for example, dice) and random arrangements. Play games which involve quickly revealing and hiding numbers of objects. Put objects into five frames and then ten frames to begin to familiarise children with the tens structure of the number system. Prompt children to subitise first when enumerating groups of up to 4 or 5 objects: "I don't think we need to count those. They are in a square shape so there must be 4." Count to check	
	• Automatically recall number bonds for numbers 0–10. 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.	Have a sustained focus on each number to 10. Make visual and practical displays in the classroom showing the different ways of making numbers to 10 so that children can refer to these. Play hiding games with a number of objects in a box, under a cloth, in a tent, in a cave, etc.: "Seven went in the tent and 2 came out. I wonder how many are still in there?" Intentionally give children the wrong number of things. For example: ask each child to plant 4 seeds then give them 1, 2 or 3. "I've only got 1 seed, I need 3 more." Spot and use opportunities for children to apply number bonds: "There are 6 of us but only 2 clipboards. How many more do we need?" Place objects into a five frame and talk about how many spaces are filled and unfilled	
	• Count beyond ten.	Count verbally beyond 20, pausing at each multiple of 10 to draw out the structure, for instance when playing hide and seek, or to time children getting ready. Provide images such as number tracks, calendars and hundred squares indoors and out, including painted on the ground, so children become	

	• Verbally count beyond 20, recognising the pattern of the counting system; • Compare numbers.	familiar with two-digit numbers and can start to spot patterns within them. Provide collections to compare, starting with a very different number of things. Include more small things and fewer large things, spread them out and bunch them up, to draw attention to the number not the size of things or the space they take up. Include groups where the number of items is the same. Use vocabulary: 'more than', 'less than', 'fewer', 'the same as', 'equal to'. Encourage children to use these words as well. Distribute items evenly, for example: "Put 3 in each bag," or give the same number of pieces of fruit to each child. Make deliberate mistakes to provoke discussion. Tell a story about a character distributing snacks unfairly and invite children to make sure everyone has the same	
	• Explore the composition of numbers to 10. • Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity; • Understand the 'one more than/one less than' relationship between consecutive numbers. • Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.	Focus on composition of 2, 3, 4 and 5 before moving onto larger numbers Provide a range of visual models of numbers: for example, six as double three on dice, or the fingers on one hand and one more, or as four and two with ten frame images. Model conceptual subitising: "Well, there are three here and three here, so there must be six." Emphasise the parts within the whole: "There were 8 eggs in the incubator. Two have hatched and 6 haven't yet hatched." Plan games which involve partitioning and recombining sets. For example, throw 5 beanbags, aiming for a hoop. How many go in and how many don't? Make predictions about what the outcome will be in stories, rhymes and songs if one is added, or if one is taken away. Provide 'staircase' patterns which show that the next counting number includes the previous number plus one.	
Geometry-Shape	• Select, rotate and manipulate shapes in order to develop spatial reasoning skills.	Provide high-quality pattern and building sets, including pattern blocks, tangrams, building blocks and magnetic construction tiles, as well as found materials. Challenge children to copy increasingly complex 2D pictures and patterns with these 3D resources, guided by knowledge of learning trajectories: "I bet you can't add an arch to that," or "Maybe tomorrow someone	

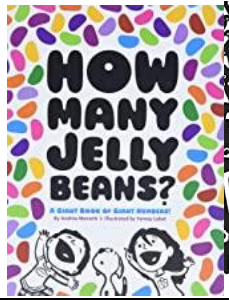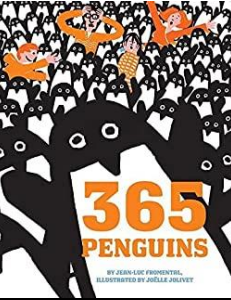|		
	• Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can. • Continue, copy and create repeating patterns.	will build a staircase." Teach children to solve a range of jigsaws of increasing challenge. Investigate how shapes can be combined to make new shapes: for example, two triangles can be put together to make a square. Encourage children to predict what shapes they will make when paper is folded. Wonder aloud how many different ways there are to make a hexagon with pattern blocks. Find 2D shapes within 3D shapes, including through printing or shadow play. Make patterns with varying rules (including AB, ABB and ABBC) and objects and invite children to continue the pattern. Make a deliberate mistake and discuss how to fix it.
Measurement	• Compare length, weight and capacity.	Model comparative language using 'than' and encourage children to use this vocabulary. For example: "This is heavier than that." Ask children to make and test predictions. "What if we pour the jugful into the teapot? Which holds more?"

Year 1

	Department for Education Statutory Guidance		Our School Mathematics Curriculum	
			What?	**When?**
Counting	• Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number • count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens • Given a number, identify one more and one less • identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least • read and write numbers from 1 to 20 in numerals and words.		Using the Power Maths Guidance and curriculum plan. Real life Maths shops in the continuous provision to support skills. Number of the week. Mastering Number- 4sessions per week.	
Addition and subtraction	• Read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs			

	• Represent and use number bonds and related subtraction facts within 20 • Add and subtract one-digit and two-digit numbers to 20, including zero • Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = – 9. 	
Multiplication	• Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.	
Fractions	• Recognise, find and name a half as one of two equal parts of an object, shape or quantity • Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.	
	• Compare, describe and solve practical problems for: • Lengths and heights [for example, long/short, longer/shorter, tall/short, double/half] • Mass/weight [for example, heavy/light, heavier than, lighter than] • Capacity and volume [for example, full/empty, more than, less than, half, half full, quarter] • Time [for example, quicker, slower, earlier, later] • Measure and begin to record the following: • Lengths and heights • Mass/weight • Capacity and volume • Time (hours, minutes, seconds) • Recognise and know the value of different denominations of coins and notes • Sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] • Recognise and use language relating to dates, including days of the week, weeks, months and years • Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.	
Geometry-Shape	• Recognise and name common 2-D and 3-D shapes, including: • 2-D shapes [for example, rectangles (including squares), circles and triangles] • 3-D shapes [for example, cuboids (including cubes), pyramids and spheres].	

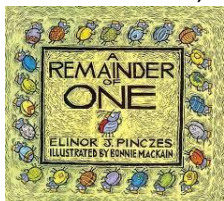| Geometry-Position	• Describe position, direction and movement, including whole, half, quarter and threequarter turns.	

Year 2 New Learning

Year 2

	Department for Education Statutory Guidance	Our School Mathematics Curriculum	
		What?	When?
Counting	• Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward • Recognise the place value of each digit in a two-digit number (tens, ones) • Identify, represent and estimate numbers using different representations, including the number line • Compare and order numbers from 0 up to 100; use < > and = signs • Read and write numbers to at least 100 in numerals and in words • Use place value and number facts to solve problems. 	Using the Power Maths Guidance and Curriculum plan. Real life Maths shops in the continuous provision to support skills. Number of the week Mastering Number- 4sessions per week.	
Addition and subtraction	• Solve problems with addition and subtraction: • Using concrete objects and pictorial representations, including those involving numbers, quantities and measures • Applying their increasing knowledge of mental and written methods • Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 • Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: • A two-digit number and ones • A two-digit number and tens • Two two-digit numbers		

	• Adding three one-digit numbers • Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot • Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. 	
Multiplication	• Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers • Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs • Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot • Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts. 	
Fractions	• Recognise, find, name and write fractions 1/3, ¼, 2/4, 2/3 of a length, shape, set of objects or quantity • Write simple fractions for example, 1/2 of 6 = 3 and recognise the equivalence of 2/4 and ½.	
Measurement	• Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels • Compare and order lengths, mass, volume/capacity and record the results using >, < and = • Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value • Find different combinations of coins that equal the same amounts of money • Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change • Compare and sequence intervals of time	

	• Tell and write the time to <mark>five minutes</mark>, including <mark>quarter past</mark>/<mark>to the hour</mark> and draw the hands on a clock face to show these times • Know the number of minutes in an hour and the number of hours in a day	
Geometry-Shape	• Identify and describe the properties of 2-D shapes, including the number of <mark>sides</mark> and <mark>line symmetry</mark> in a <mark>vertical line</mark> • Identify and describe the properties of 3-D shapes, including the <mark>number of edges</mark>, <mark>vertices</mark> and <mark>faces</mark> • Identify 2-D shapes on the surface of 3-D shapes [for example, a circle on a <mark>cylinder</mark> and a <mark>triangle</mark> on a <mark>pyramid</mark>] • Compare and sort common 2-D and 3-D shapes and everyday objects.	
Geometry-Position	• Order and arrange combinations of mathematical objects in patterns and sequences • Use mathematical vocabulary to describe position, direction and movement, including movement in a <mark>straight line</mark> and distinguishing between <mark>rotation</mark> as a turn and in terms of <mark>right angles</mark> for <mark>quarter</mark>, <mark>half</mark> and <mark>three-quarter turns</mark> (<mark>clockwise and anticlockwise</mark>)	

Appendix

EYFS Development Matters September 20.pdf

Primary National Curriculum September 2013.pdf

EYFS Framework March 2021.pdf

https://www.activelearnprimary.co.uk/login?e=-1&c=0#powermaths