

Netherton Park Nursery School



Netherton Park
Nursery School

Maths Policy

Reviewed: September 2026	Next review date: September 2029
Chair of Governor signature:	

Related policies/documents:

- Birth To 5 Matters
- Communication and Language Policy
- Curriculum overview
- Development Matters
- Learning Aspirations
- SEND Policy
- Teaching, Learning and Assessment Policy
- Understanding the World Policy

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"Don't underestimate a child's ability to do math."

There should be no such thing as boring mathematics.

-Edsger Dijkstra

www.homeschoolingse.org

Never say, "I can't"
Always say, "I'll try"

GO DOWN DEEP ENOUGH
INTO ANYTHING AND
YOU WILL FIND
MATHEMATICS

-Dean Schubert

Check out how some of my fabulous students used their creativity to show how they looked deep to find math...

"The MIND is not a vessel to be filled, but a FIRE to be kindled"



Plutarch

Math MAY NOT teach me how to add love OR subtract hate, BUT it GIVES me hope that every problem has a solution.

Quora

May 17th 2018 Reply by Angela Foster

"The only way to learn mathematics is to do mathematics."

-Paul Halmos

STUDYTRAD

THERE is a difference BETWEEN not knowing AND NOT KNOWING YET.

- Shafiq Tobias

MATH
is
FUN!

“The first few years of a child’s life are especially important for mathematics development. Research shows that early mathematical knowledge predicts later reading ability and general education and social progress. Conversely, children who start behind in mathematics tend to stay behind throughout their whole educational journey.”

National Centre for Excellence in the of Teaching Mathematics

Intent

At Netherton Park Nursery School, we are committed to promoting a love for mathematics, ensuring all children develop confidence in applying their mathematical knowledge and skills in everyday life. Our teaching approach is engaging and enjoyable, promoting a positive ‘can-do’ attitude while building reasoning, and problem-solving abilities. In line with the Early Years Foundation Stage (EYFS), we believe we can help our children develop the building blocks to excel mathematically, through rich play-based learning opportunities. These opportunities are carefully planned to develop a strong grounding in number, pattern and spatial reasoning including shape, space, and measure. Teaching has a strong emphasis on practical, hands-on experience, mathematical talk, and purposeful provision that supports early mathematical thinking, with frequent opportunities to apply mathematics into daily routines.

This policy reflects our Nursery School’s values and philosophy in relation to the teaching of Mathematics. It sets out a detailed framework which the staff can work within. It gives guidance on planning, teaching and assessment. The policy should be read in conjunction with the Early Years Foundation Stage for Mathematics which sets out developmental progress.

Our aims for the children are...

- To develop a real love of Maths and take this love on through their life
- To be curious and eager to learn new skills, and have the confidence ‘to have a go’
- To empower them to have the perseverance and confidence to tackle problems and face challenges.
- To make connections and notice patterns in their everyday experiences
- To develop ideas of grouping, sequencing and cause and effect
- To develop a meta cognitive approach, testing out their own ideas, making predictions and solving problems
- To develop their critical thinking and problem-solving skills

- To have a rich mathematical vocabulary
- To represent their ideas and thoughts using words and using marks

Implementation

How we teach Maths

‘Much of young children’s spontaneous play is mathematical’

Clements and Saram.

- We place a high priority on early Maths, as part of both the **curriculum** and **everyday routines**.
- We provide an **environment** which exposes the children to rich **meaningful, mathematical learning opportunities**. This includes well planned learning spaces created as part of our continuous curriculum provision, alongside adult directed experiences.
- We adopt a culture that fosters and **supports Curiosity, Thinking and Problem Solving**, ensuring experiences offered are engaging, interesting, appropriate and challenging.
- Learning spaces are enhanced with new and different **resources**, objects and materials to support children’s curiosity, this will then enhance their critical thinking, and problem-solving skills and encourage a greater confidence to embrace new challenges and persevere with them when things happen unexpectedly.
- Staff model appropriate **mathematical language, demonstrate** problem solving and include Maths within the daily routines of each session.
- Staff provide opportunities for **Sustained Shared Thinking** to support children’s deep level learning. Here, adults and children work together to explore ideas, solve problems, and clarify concepts. Children are encouraged to lead conversations and adults will listen and show interest. Adults offer appropriate support and use open ended questions to stimulate thinking. Children learn to feel valued and are encouraged to express their ideas freely.
- **ALL children** will be encouraged to engage in mathematical learning at a level and pace that is suitable to them. Where a child has delayed communication and interaction skills, mathematical ‘discussion’ may not be in words. **Adults will observe** what fascinates them and how they approach problem-solving. They will then **extend their thinking through physical interactions during play**
- As part of their ongoing CPD, staff receive bespoke and specific **training** about teaching early Maths skills and the correct language linked to key skills, this is supported by individual targeted coaching support.
- **Parents/carers** are a huge part of the process, with staff supporting their understanding of the value of

early Maths through inductions, stay and play sessions and information sent home, on Tapestry and our website.



Adults Role

Children deserve adults who...

- Wait, and take the time to really observe and/or listen to the children's ideas and language
- Comment on children's mathematical experiences and explorations
- Ask open ended questions e.g. 'what do you see?, what do you notice?, how do you see it?
- Offer interesting materials, resources and objects as provocations for the children to investigate
- Ensure the provision is rich with opportunities and meaningful experiences to explore maths and deepen children's understanding of mathematical concepts
- Model, demonstrate, and support children's investigation skills
- Notice the maths opportunity when sharing books with the children
- Recognise the importance of everyday experiences, routines and transitions as valuable Maths learning opportunities
- Use number language in everyday situations, e.g. can you pick up 2 pencils, ooh look I can see 3 oranges, I have 2 pigs.....
- Expose them to fun songs and rhymes that have number in them, introduce props to support their understanding of number.
- Represent numbers using objects, marks, and materials during play experiences
- Understand that the numeral is the abstract and should only be introduced once the children have number sense
- Model and support children's understanding of quantity
- Provide a range of real-life opportunities for children to explore a range of mathematical concepts (e.g weight, capacity, distance and height)
- Model and explore with the children, ways to solve real life problems, 'thinking' out loud to model the process, allowing them to make mistakes and test out their own ideas
- Tap into children's interests in areas of Maths such as number, shape and pattern and support them to extend their skills and knowledge
- Support children to widen their interests and access to new mathematical experiences
- Frequently reflect on the teaching and learning of maths to ensure children are interested in and enjoying experiences as well as being supported and challenged appropriately.

- Recognise that children are unique and learn in different ways, and to ensure the stimulating experiences provided reflect this.
- Have a good subject knowledge including of how maths skills can be developed through play and have a good understanding of the progression of maths skills

Content and progression in Maths at Netherton Park Nursery School

At Netherton Park Nursery School, we aim to ensure that every child reaches their full potential by ensuring there is a clear progression pathway. This is also outlined in our long term plans which show the intended progression of mathematical skills, experiences and vocabulary. Where children are working below or above their expected level, differentiation and/or targeted maths intervention may be required to enable the child to reach their full potential.

	Comparison	Counting	Cardinality	Subitising	Composition
0-12 months	Reacts to changes of amount when those amounts are significant (more than double).				
12-18 months	May be aware of number names through their enjoyment of action rhymes and songs that relate to numbers. Looks for things which have moved out of sight.				
18-24 months	Responds to words like lots or more.	Says some counting words. May engage in counting-like behaviour, making sounds and pointing or saying some numbers in sequence.	Uses number words, like one or two and sometimes responds accurately when asked to give one or two things.	Uses number words, like one or two and sometimes responds accurately when asked to give one or two things.	Uses number words, like one or two and sometimes responds accurately when asked to give one or two things.
24-36 months	Beginning to compare and recognise changes in numbers of things, using words like more, lots or 'same'.	Begins to say numbers in order, some of which are in the right order (ordinality).	In everyday situations, accurately takes or gives two or three objects from a group. Beginning to notice numerals (number symbols). Beginning to count on their fingers.	In everyday situations, takes or gives two or three objects from a group. Beginning to count on their fingers.	In everyday situations, takes or gives two or three objects from a group. Beginning to count on their fingers.
36-48 months	Compares 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!"	May enjoy counting verbally as far as they can go. Points or touches (tags) each item, saying one number for each item, using the stable order of 1,2,3,4,5. Uses some number	Counts up to five items, recognising that the last number said represents the total counted so far (cardinal principle). Links numerals with amounts up to 5 and maybe	Subitises one, two and three objects (without counting). Through play and exploration, beginning to learn that numbers are made up	Through play and exploration, beginning to learn that numbers are made up (composed) of smaller numbers. Beginning to use understanding of number to

		names and number language within play, and may show fascination with large numbers. Begin to recognise numerals 0 to 10.	beyond. Explores using a range of their own marks and signs to which they ascribe mathematical meanings.	(composed) of smaller numbers.	solve practical problems in play and meaningful activities. Beginning to recognise that each counting number is one more than the one before. Separates a group of three or four objects in different ways, beginning to recognise that the total is still the same.
48-60 months	Uses number names and symbols when comparing numbers, showing interest in large numbers. Estimates numbers of things, showing understanding of relative size.	Enjoys reciting numbers from 0 to 10 (and beyond) and back from 10 to 0. Increasingly confident at putting numerals in order 0 to 10 (ordinality).	Counts out up to 10 objects from a larger group. Matches the numeral with a group of items to show how many there are (up to 10).	Engages in subitising numbers to four and maybe Five. Begins to conceptually subitise larger numbers by subitising smaller groups within the number, e.g. sees six raisins on a plate as three and three.	Shows awareness that numbers are made up (composed) of smaller numbers, exploring partitioning in different ways with a wide range of objects. Begins to conceptually subitise larger numbers by subitising smaller groups within the number, e.g. sees six raisins on a plate as three and three. In practical activities, adds one and subtracts one with numbers to 10. Begins to explore and work out mathematical problems, using signs and strategies of their own choice, including (when appropriate) standard numerals, tallies and “+” or “-”

	Pattern	Shape	Spatial Awareness	Measure
0-12 months	Shows interest in patterned songs and rhymes, perhaps with repeated actions. Experiences patterned objects and images. Begins to predict what happens next in predictable situations.	Explores differently sized and shaped objects. Beginning to put objects of similar shapes inside others and take them out again.	Explores space when they are free to move, roll and stretch. Developing an awareness of their own bodies, that their body has different parts and where these are in relation to each other.	Responds to size, reacting to very big or very small items that they see or try to pick up.
12-18 months	Joins in with repeated actions in songs and stories. Initiates and continues repeated actions.	Stacks objects using flat surfaces. Responds to changes of shape. Attempts, sometimes successfully, to match shapes with spaces on inset puzzles.	Explores space around them and engages with position and direction, such as pointing to where they would like to go.	Shows an interest in objects of contrasting sizes in meaningful contexts. Shows an interest in emptying containers. Gets to know and enjoys daily routine.
18-24 months	Becoming familiar with patterns in daily routines. Joins in with and predicts what comes next in a story or rhyme. Beginning to arrange items in their own patterns e.g. lining up toys.	Pushes objects through different shaped holes and attempts to fit shapes into spaces on inset boards or puzzles. Beginning to select a shape for a specific space. Enjoys using blocks to create their own simple structures and arrangements.	Enjoys filling and emptying containers. Investigates fitting themselves inside and moving through spaces.	Shows an interest in size and weight. Explores capacity by selecting, filling and emptying containers, e.g. fitting toys in a pram. Beginning to understand that things might happen now or at another time, in routines.
24-36 months	Joins in and anticipates repeated sound and action patterns. Is interested in what happens next using the pattern of everyday routines.	Chooses puzzle pieces and tries to fit them in. Recognises that two objects have the same shape. Makes simple constructions.	Moves their bodies and toys around objects and explores fitting into spaces. Begins to remember their way around familiar environments. Responds to some spatial and positional language. Explores how things look from different viewpoints	Explores differences in size, length, weight and capacity. Beginning to understand some talk about immediate past and future. Beginning to anticipate times of the day such as mealtimes or home time.

			including things that are near or far away.	
36-48 months	Creates their own spatial patterns showing some organisation or regularity. Explores and adds to simple linear patterns of two or three repeating items, e.g. stick, leaf (AB) or stick, leaf, stone (ABC). Joins in with simple patterns in sounds, objects, games and stories, dance and movement, predicting what comes next	Chooses items based on their shape which are appropriate for the child's purpose. Responds to both informal language and common shape names. Shows awareness of shape similarities and differences between objects. Enjoys partitioning and combining shapes to make new shapes with 2D and 3D shapes. Attempts to create arches and enclosures when building, using trial and improvement to select blocks.	Responds to and uses language of position and direction. Predicts, moves and rotates objects to fit the space or create the shape they would like.	In meaningful contexts, finds the longer or shorter, heavier or lighter and more/less full of two items. Recalls a sequence of events in everyday life and stories.
48-60 months	Spots patterns in the environment, beginning to identify the pattern "rule". Chooses familiar objects to create and recreate repeating patterns beyond AB patterns and begins to identify the unit of repeat.	Uses informal language and analogies, (e.g. heart shaped and hand-shaped leaves), as well as mathematical terms to describe shapes. Enjoys composing and decomposing shapes, learning which shapes combine to make other shapes. Uses own ideas to make models of increasing complexity, selecting blocks needed, solving problems and visualising what they will build.	Uses spatial language, including following and giving directions, using relative terms and describing what they see from different viewpoints. Investigates turning and flipping objects in order to make shapes fit and create models; predicting and visualising how they will look (spatial reasoning). May enjoy making simple maps of familiar and imaginative environments, with landmarks.	Enjoys tackling problems involving prediction and discussion of comparisons of length, weight or capacity, paying attention to fairness and accuracy. Becomes familiar with measuring tools in everyday experiences and play. Is increasingly able to order and sequence events using everyday language related to time. Beginning to experience measuring time with timers and calendars.

Mathematical Vocabulary

Number	Addition and	Measures	Length	Height	Width	Depth
Number	More	Measure	Length	Tall	Wide	Deep
Zero	Add	Size	Long	Taller than	Wider than	Deeper than
One, two...	Altogether	Guess	Longer than	Tallest	Widest	Deepest
How many?	How many?	Estimate	Longest	Short	Fat	Shallow
Count	Put together	Enough	Short	Shorter than	Fatetr than	Shallower
Same as	1 more	Not enough	Shorter than	Shortest	Fattest	than
More	How many	Too much	Shortest	High	Narrow	Shallowest
Less	more?	Too little		Higher than	Narrower	
Few, fewer	Take away	Too many			than	
Greater than	Less	Too few			Narrowest	
	How many	Nearly			Thin	
	are left?	Close to			Thinner than	
	How many	About the			Thinnest	
	have gone?	same as			Slim	
	1 less				Slimmer than	
					Slimmest	

Size	Distance	Weight	Capacity and Volume	Time		
Big	Far	Weigh	Full	Days of the week	After	Slowest
Bigger than	Far away	Weighs	Fuller than	Day	Next	Slowly
Biggest	Further	Balance	Fulllest	Week	Last	Old
Small	Further than	Balances	Nearly full	Morning	Now	Older than
Smaller than	Furthest	Scales	Half full	Afternoon	Soon	Oldest
Smallest	Near	Heavy	Empty	Evening	Early	New
Middle	Nearer than	Heavier than	Half empty	Night	Late	Newest
Medium	Nearest	Heaviest	Nearly empty	Bedtime	Quick	Newer than
Taller	Close	Light	Holds more than	Dinner time	Quicker than	Takes longer than
Tall	Closer than	Lighter than	Holds less than	Today	Quickest	Takes less time than
Tallest	Closest	lightest		Yesterday	Quickly	
Shorter					Slow	

Short shortest			More Less	Tomorrow before	Slower than Slowest	
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Speed	Shape	Position and direction		Pattern
Quick	Flat	Over	Up	Symmetrical
Quicker than	Curved	Under	Down	Repeats
Quickest	Straight	Above	Forwards	Repeating
Quickly	Round	Below	Backwards	
Slow	Hollow	Top	Sideways	
Slower than	Solid	Bottom	Across	
Slowest	2D shapes	Side	Close	
Slowly	Corner	On	Near	
Fast	Side	In	Far	
Faster than	Rectangle	Outside	Along	
Fastest	Square	Inside	Through	
	Circle	Around	To	
	Triangle	In front of	From	
	3D shape	Behind	Towards	
	Face	Front	Away from	
	Edge	Back	Side	
	Cube	Beside	Roll	
	Cuboid	Next to	Turn	
	Sphere	Opposite	Stretch	
	Cone	Apart	Bend	
	Pyramid	Between		
		Middle		
		Edge		
		Corner		
		Direction		
		Left		
		Right		

Maths in daily routines

Staff use daily routines and structure within sessions to model and support a range of early Math skills - this includes spontaneous and planned activities.

In the moment teaching and learning opportunities are recognised and embraced by all staff, to ensure mathematical skills are experienced in a variety of contexts to deepen children's understanding of concepts.

All of the transitional routines such as tidy up time, getting ready to go outside, nappy time, snack time and home time are recognised as valuable teaching moments.

Rhymes, poems and songs

Many songs and nursery rhymes incorporate mathematical concepts such as counting, addition, subtraction, direction, position, pattern, time, order and routine. Singing songs and rhymes can be a great opportunity to introduce and develop maths concepts.

At Netherton Park, we have a number of songs and rhymes that we want children to experience and know during their time with us. We introduce these at group times and within the experiences offered throughout the year as part of our continuous and enhanced provisions. We encourage the use of actions, dance, movement and props to aid understanding and consolidation of concepts and to encourage an enjoyment of singing.

We use rhythm and rhyme to support transition times and to enhance experiences in the moment to support children's learning experiences.

We have songs/rhymes of the week and share these with parents/carers on Tapestry so they can also join in and help their children at home.

Stories and texts to support understanding number and early mathematical concepts

We have a core set of texts that promote and support, early mathematical concepts. The books and supporting resources are introduced at group times as an adult directed session, as well as then in the environment.

We ensure that the children are exposed to wider range of written materials, both fiction and non-fiction responding to their interests and to support their learning. Children are encouraged through modelling, sustained shared thinking etc to see stories as an opportunity to develop mathematical concepts and vocabulary.

Examples of texts used to support mathematical concepts/vocabulary:

One duck stuck	Tickle my ears	
Ten little Pirates	Postman Bear	
How big Is a million	Hide and seek pig	
Goldilocks and the Three Bears	Fox's Socks	
The Three Billy Goats Gruff	123 Vehicles	
The Gingerbread Man	Monkey and Me	
Mouse count	Yes	
We all went on safari	Tall	
Run Mouse run	Hug	
The Very Hungry Caterpillar	Me	
One Mole digging a hole		
There was an old lady who swallowed a fly		
Dear Zoo	Who's on the Farm?	
Busters Zoo	Jaspers Beanstalk	
Noisy Farm	Orange, Pear Apple Bear	
One Ted fall out of bed	Farm Chase	
Clip Clop	Duck in the Truck	
Ten Frogs	A Squash and a Squeeze	
Where's my teddy?	Owl babies	
The train ride	Oliver's Fruit Salad	Rosie's walk
	Oliver's Vegetables	
Little Monkey	Billy's Bucket	
Big bear little bear	The shopping Basket	
Where's Spot?	Someone Bigger	

Interventions

Small group work

Following termly assessments, children identified as working below age related expectations within Maths will be supported through small group intervention. The content and delivery will depend upon the children's needs. The groups will be continually monitored to track progress, and children will be moved into and out of groups as needed.

Some children may have additional mathematical support within the environment to support their needs, to address misconceptions or to move their learning on further. Adults will enhance the environment and vary teaching strategies to best support the child.

Vygotsky

Vygotsky Maths interventions are a tool that are used to enhance the learning for children who need extra challenge to further develop and deepen their understanding of early mathematics. As an intervention the impact will be measured through reflection of the implementation throughout these sessions.



Learning Environments

‘Good numeracy is the best protection against unemployment, low wages and poor health.’

Andreas Schleicher

The learning spaces within the environments are carefully planned and resourced to support children's early mathematical skills. We aim to integrate maths concepts seamlessly across the rooms and outdoor spaces in order to promote **active learning through exploration and play**. Developing curiosity, confidence and perseverance to 'have a go' is a priority.

Our environments include;

- areas containing tactile resources to make children feel like natural mathematicians e.g. the use of natural resources and loose parts to create patterns, aid counting and subitising, create pictures and models etc.
- Role play areas where children can incorporate maths into everyday life. Role play areas are changed throughout the year to provide a range of learning experiences e.g. home corner, hairdressers, shop, doctors etc.
- Construction areas (large and small scale resources) promoting problem solving, counting, measure, comparison, spatial awareness etc
- Sensory play such as sand and water trays and mud kitchens to promote filling and emptying, understanding of capacity, volume, more / less etc
- Gross motor equipment to enable children to challenge themselves through movement e.g. creating obstacle courses and climbing to encourage positional, directional language, counting etc
- Fine motor resources such as play dough, mark making materials, threading, pegs etc
- Small world areas
- Outdoor equipment such as bean bags, balls, buckets etc to encourage children to make up games that can promote mathematical thinking.

In all areas, adults aim to promote sustained shared thinking, encourage critical thinking and problem solving, help children apply their maths skills in different contexts and develop their mathematical vocabulary etc

Working with parents/carers

We value our relationships with parents/carers and know that these good relationships have a positive impact on our children's learning and on the progress they make. We have developed systems to share our

understanding of Maths development and what parents/carers can do to support children's learning at home.



Stay and play sessions

During each academic year we invite all parents/carers to attend stay and play sessions. Differing sessions are planned to support all of the children.

Parents/carers are introduced to the concept that Maths is everywhere in all daily activities. Staff model how to support maths learning and offer suggestions of ways parents can support their child at home.

Tapestry



Tapestry is our main form of communication. Here, we keep parents/carers informed of ways to help their child at home. We offer fun learning challenges that give parents new ideas and show them how they can make maths enjoyable and relevant at home.

Curriculum newsletters are sent out half termly and mathematical concepts and skills are shared with parents/carers to engage them in their children's learning. Newsletters also help explain concepts to the parents to avoid misconceptions.

Impact

Practitioners record children's interests and achievements on their Tapestry learning journal. Formative and summative assessments are used to inform future planning. Practitioners use their professional knowledge and evidence from observations to make summative assessments using Birth to Five Matters Ranges. These take place on entry, mid-year and end of June (Exit). For those children who are not making expected progress, we have developed interventions to support their progress. If we continue to observe and identify that children are working below their expected age and stage of development, then specific steps are put into place. This will be unique and bespoke based on individual potential needs and will involve a collaborative approach with parents and professionals. (See SEND policy). The Headteacher carries out detailed analysis using the assessments. This includes looking at the progress of key vulnerable groups (EYPP, CLA, SEND, EAL, Boys etc). This information is shared with Governors and staff and is used to plan for specific interventions as well as feeding into the SDP and whole school targets. Parents are invited in to discuss their child's progress with their key person in the Spring and Summer term.

The impact of our Mathematics curriculum is monitored closely by the Headteacher and Deputy Headteacher, supported by the other members of SST, through observations of staff and children, learning walks, assessments and progress data. Areas of strength and potential development are highlighted. This then informs future planning, training for staff, and supports any changes needed within the learning environment and resources to ensure the curriculum continues to be effective. This is shared with all staff as part of a continuous collaborative process which includes regular Professional Development Meetings, INSET days and team meetings as well as individual feedback where appropriate.

When children leave Netherton Park Nursery School they will do so with a solid foundation of early mathematical skills. The children will understand simple mathematical principles which they will continue to build on as they continue their education. The children will be able to use mathematical vocabulary in a range of contexts and show their understanding through their natural curiosity and play skills. Children will understand early number, simple problem-solving skills and will have a good foundation of subitising/quantifying number to 5.