New Brighton Primary School
Maths Curriculum 2023-24

Maths at New Brighton

Maths is a skill we use on a daily basis and is an essential part of everyday life. Therefore, mathematics an important part of our broad and balanced curriculum. Our aim is to develop a positive culture of deep understanding, confidence and competence in maths that produces strong, secure learning. As a school, we recognise that the key to unlocking the potential in our children is through the development of basic mathematical skills and the understanding of mathematical concepts. We therefore place a great emphasis on the use of concrete resources and pictorial representations at all ages, to enable children to fully understand the concepts and principals, when presented with abstract calculations and questions.

Our Curriculum for mathematics fulfils the requirements of the National Curriculum and intends to ensure that all pupils:

1. Become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.

2. Reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language.

3. Can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions. Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas.

The programmes of study are, by necessity, organised into apparently distinct domains, but pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. Our curriculum ensures children apply mastery skills, giving *consistent coverage of each strand in every year by enriching the White Rose curriculum* to extend fluency, reasoning and problem solving. They should also apply their mathematical knowledge to science and across the wider curriculum.

The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged through being offered rich mastery and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice.

Intent
Our pedagogy for maths follows the Mastery and 'CPA' (concrete-pictorial-abstract) approaches where we endeavour to ensure that children develop an enjoyment and enthusiasm for maths that will stay with them throughout their lives and empowers them in future life. Our maths curriculum aims to build confidence and enjoyment through children accessing a variety of resources and methods in their maths lessons. Every year group in our school has access to a variety of concrete materials which allows children to investigate and embed mathematical concepts, allowing for the fluidity of movement between the CPA skills, complementing our mastery approach to teaching. This approach allows us to recognise every child's individual strength while giving them the opportunity to build their resilience, self-esteem and independence.

Underpinned by:			
High expectations and Mastery	Modelling	A Vocabulary Rich Environment	Pattern and Connection Identification
All children are expected to succeed and make progress from their starting points. They will gain sufficient depth of knowledge and understanding to reason and explain mathematical concepts and procedures; children use these methods to solve a variety of problems. Children will able to independently explore and investigate mathematical contexts and structures, communicate results clearly and systematically explain and generalise the mathematics.	Teachers teach the skills needed to succeed in mathematics providing examples of good practice and having high expectations. Teachers ensure children have opportunities to visualise mathematics through a wide range of representations which they become competent in applying to their own mathematical thinking.	We intend to create a vocabulary rich environment, where talk for maths is a key learning tool for all pupils. Pre teaching key vocabulary is a driver for pupil understanding and develops the confidence of pupils to explain mathematically.	All children will have opportunities to identify patterns or connections in their maths; they can use this to predict and reason and to also develop their own patterns or links in maths and other subjects.

Implementation

Our maths curriculum immerses children in a rich diet of fluency, reasoning and problem solving. We believe that unlocking mathematical fluency is an essential life skill for all learners and is a pre-requisite to being able to reason and solve problems mathematically. Our curriculum offers every child the opportunity to master the maths curriculum and apply their knowledge and skills in real contexts. Giving us clear progression across each key stage and is tailored to the needs of our children.

Evidenced by…

Curriculum	Retrieval	Assessment	Supportive Apps & Maths Resources
Every class from KS1 and KS2 follows the White Rose scheme of learning which is based on the National Curriculum. The Foundation Stage follows Development Matters statements and Early Learning Goals which has been tailored to work alongside our Mastery approach. Lessons are personalised to address the individual needs and requirements for a class. In order to further develop the children's fluency, reasoning and problem-solving, we enhance the White Rose scheme using a wide range of resources which correlate to the White Rose lessons and further develops children's understanding of a concept and the links between maths topics. We also use a range of planning resources including those provided by the NCETM and NRICH to enrich our children's maths diet.	At the beginning of every maths session children are presented with a maths task to ensure that maths knowledge is continually revisited and that fluency and knowledge are maintained and developed. This takes place in a variety of forms: Flashback 4, specific arithmetic or fluency target practice or a cold problem.	Through our teaching we continuously monitor pupils' progress against expected attainment for their age, making formative assessment notes where appropriate and using these to inform our teaching. Teaching staff continually use Balance to record and monitor progress. Summative assessments are completed at the end of each term; their results form discussions and are used to inform catch-up support as well as informing teachers of learning opportunities. The main purpose of all assessment is to always ensure that we are providing excellent provision for every child. . Children self-assessment supports teachers to have a wider picture of how the child assess their own learning via AFL as well as Balance scores.	Across school we have a wide range of tools available to support the teaching and understanding of maths. Each classroom is equipped with a range of place value manipulatives (concrete resources) pertinent to the skills taught within that year group. There is a central bank of shape, space and measures resources. In order to advance individual children's maths skills in school and at home, we utilise Times Tables Rock Stars for multiplication practise, application and consolidation. Children also access SumDog to develop confidence and fluency in skills giving children an opportunity to embed and revisit skills both at home and in school. In KS2, maths homework is set weekly via SumDog and TTRockstars. A wide range of resources including Build-A-Sequence, supportive web links, training documents etc. are also available on our Shared Drive to enhance teaching and learning.

CPA (Concrete-Pictorial-Abstract)	Continuous Professional Development	Cross Curricular Links	Whole School Maths
We implement our approach through high quality teaching delivering appropriately challenging work for all individuals. To support us, we have a range of mathematical resources in classrooms including Numicon, Base10 and counters (concrete equipment). When children have grasped a concept using concrete equipment, images and diagrams are used (pictorial) prior to moving to abstract questions. Abstract maths relies on the children understanding a concept thoroughly and being able to use their knowledge and understanding to answer and solve maths without equipment or images. Teaching using the CPA is not a linear approach e.g. children may be challenged to prove their abstract mathematics correctly using pictorial or concrete representations/models.	We continuously strive to better ourselves and frequently share ideas and information that have been particularly effective. We take part in training opportunities and regional networking events, such as the Mastery TRG work groups and ensure we attend termly meetings with our local Maths Hub. Our Maths Leads continually support staff across school with individual needs as well as leading whole school training via Staff Meetings.	Maths is taught across the curriculum ensuring that skills taught in these lessons are applied in other subjects. Our school curriculum coverage is mapped using Cornerstones identifying cross-curricular links and opportunities.	We will celebrate National Maths Day and have whole school maths themed days e.g. TTRockstars Day, SumDog Whole School challenge and My Money Project. These bring the whole school together to concentrate on one theme. Our year 6 pupils take part in Rising Aspirations with Positive Footprints giving our year 6 children the opportunity to contextualise their maths skills and make connections to real life application. Money Sense: My Money Week Project is a whole school project creating real life opportunities for children to contextualise maths in real life scenarios including balancing a budget and creating a mini business looking at profit and loss. Whole school challenges take place termly through SumDog where the school joins the nation in completing to be top of the SumDog leader board.

Impact

We believe that every child will leave New Brighton Primary equipped with the necessary skills in fluency and reasoning in order to access the range of opportunities that they would be presented with as they make the transition to secondary education and later life.

Evidenced by:

Pupil Voice	Evidence in Knowledge	Evidence in Skills	Outcomes
Through discussion and feedback, children talk enthusiastically about their maths lessons and speak about how they love learning about maths. They will be able to articulate the context in which maths is being taught and relate this to real life purposes. Children show confidence and believe they can learn about a new maths area and apply the knowledge and skills they already have.	Pupils will know how and why maths is used in the outside world and in the workplace. They will know about different ways that maths can be used to support their future potential. Mathematical concepts or skills are mastered when a child can show it in multiple ways, using the mathematical language to explain their ideas, and can independently apply the concept to new problems in unfamiliar situations. Children demonstrate a quick recall of facts and procedures. This includes the recollection of the times table and fluency targets.	Pupils use acquired vocabulary in maths lessons. They have the skills to use methods independently and show resilience when tackling problems. The flexibility and fluidity to move between different contexts and representations of maths. Children show a high level of pride in the presentation and understanding of the work. The chance to develop the ability to recognise relationships and make connections in maths lessons.	At the end of each year we expect the children to have achieved Age Related Expectations (ARE) for their year group. Some children will have progressed further and achieved greater depth (GD). Children who have gaps in their knowledge receive appropriate support and intervention.
			Mastery
			We aim for all children to secure long-term, deep and adaptable understanding of maths which they can apply in different contexts.

Our Curriculum:

Key Skills EYFS.		
Number and Place value.	Addition and subtraction.	Multiplication and division.
- Have a deep understanding of numbers up to 10, including the composition of each number. - Subitise (recognise quantities without counting) up to 5. - Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity. -Solve real world mathematical problems with numbers up to 5. - Compare quantities using language: 'more than', 'fewer than' - Know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle').	– Automatically recall number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts. - 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.

<table>
<tr><th colspan="3"><u>Key Skills EYFS.</u></th></tr>
<tr><th>Patterns.</th><th>Properties of shapes.</th><th>Measurement</th></tr>
<tr><td rowspan="3">- Continue, copy and create repeating patterns.

- Notice and correct an error in a repeating pattern.

- Extend and create ABAB patterns – stick, leaf, stick, leaf.

-Talk about and identify the patterns around them. For example:stripes on clothes, designs on rugs and wallpaper.</td><td>- Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.
- Select, rotate and manipulate shapes in order to develop spatial reasoning skills.
- 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 explore 2D and 3D shapes using informal and mathematical language:</td><td rowspan="3">- Make comparisons between objects relating to size, length, weight and capacity.

- Compare sizes, weights etc. using gesture and language ‘bigger/little/smaller’, ‘high/low’, ‘tall’, ‘heavy’.</td></tr>
<tr><td>Position and direction</td></tr>
<tr><td>- Begin to describe a sequence of events, real or fictional, using words such as ‘first’, ‘then...’
- Describe a familiar route.
- Discuss routes and locations, using words like ‘in front of’ and ‘behind’.
- Understand position through words alone.</td></tr>
<tr><td></td><td></td><td>Counting</td></tr>
<tr><td></td><td></td><td>- Count objects, actions and sounds.
- Verbally count beyond 20, recognising the pattern of the counting system.</td></tr>
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<u>Embedded WRM Long Term overview & Progression of Skill for YYr1-6 doc.</u>