



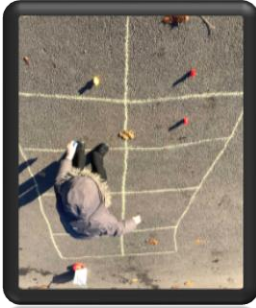
Saint Nathaniel's Academy

'With God all things are possible.'



Matthew 19:26

Mathematics Subject Story



Intent

At Saint Nathaniel's Academy we aim to build happy, confident and resilient mathematicians, with every pupil believing that by working hard at maths, they can succeed.

The National Curriculum for Mathematics aims to ensure that all pupils:

- ❖ *Become fluent in the fundamentals of mathematics so that they can develop their conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.*
- ❖ *Reason mathematically, including being able to develop an argument, justification or proof using mathematical language.*
- ❖ *Solve problems by applying their mathematics to a variety of problems, including breaking them down into a series of smaller steps, and persevering in seeking solutions.*

Implementation

At Saint Nathaniel's Academy, we aim for our children to thrive as successful, independent thinkers and learners of mathematics. We share Willingham's belief that **'whatever students think about is what they will remember...memory is the residue of thought.'** Our mathematics curriculum values and creates opportunities for children to think and develop their deep conceptual understanding; encourages observant learning, pattern spotting and generalising about the rules of the maths they are learning.

We have recently adopted the Power Maths Scheme of Learning. The principles of mastery underpin this scheme and our teaching. A whole class teaching approach is adopted, keeping the class working together and giving all pupils the chance to work on fluency, reasoning and problem-solving tasks. Support for all learners is achieved through various forms of scaffolding. This may include but is not limited to; the degree of adult support provided, asking enabling and extending questions and the use of concrete, pictorial and abstract resources. Pupils who are struggling to grasp a concept or procedure are identified quickly and intervention (either same day, or longer-term support) is put in place, ensuring they are ready to move forward with the rest of the class. At the same time, our curriculum provides opportunities for all pupils to revisit and reinforce learning, including key concepts from previous topics and year groups, to help them truly develop their understanding and mastery of the mathematics.

In our EYFS classes, pupils work towards the Early Learning Goals for Number and Numerical Patterns. The Power Maths materials are built into the unique pedagogy of the EYFS. This is supported in both EYFS and KS1 by the NCETM Mastering Number program to nurture observant learning and embed the children's numerical understanding.

The Key Stage One and Key Stage Two curriculum focuses on four areas across the course of the year: number (Place Value, Addition, Subtraction, Multiplication, Division, Fractions), measurement, geometry and statistics. Initially, in each year, the emphasis is on number skills with concepts carefully structured to enable pupils to constantly build upon and make links with their prior learning. The four operations are revisited frequently through problem solving opportunities in other areas of maths

to help children make connections between the concepts they are learning. Opportunities to apply mathematical understanding in other areas of the curriculum are used such as statistics in science and geography as one example.

Each unit starts by revisiting the DfE Ready to Progress criteria based on the previous year's understanding to ensure children are not proceeding in a new unit with gaps in their understanding. The teacher models how to complete the activity meeting the objective. This is followed by opportunities to discuss, practise and observe the method and operation(s). The teacher will model all the methods and vocabulary clearly; this is then displayed on the working wall for pupils to refer to. Mathematical talk is a crucial component of lessons at Saint Nathaniel's Academy. Lessons include regular opportunities for the children to discuss their understanding and explain their thinking, both with adults and with peers. Accurate use of vocabulary is crucial, modelled by teachers and expected from pupils.

Following this, pupils access intelligent practice aimed at developing fluency, reasoning and problem solving, giving the children the chance to explore the concept being taught in depth, before moving onto the next one. Children are exposed to multiple representations of a concept, using concrete, pictorial and abstract representations to support the children's understanding. The lesson finishes with a reflect plenary which gives the pupils and teacher chances to assess their learning during the lesson and identify their next steps. Each unit of work finishes with a RtP task allowing children to demonstrate their progress over the unit of work.

Impact

EYFS

	2017/2018	2018/2019	2021/2022	2022/2023
Good Level of Development	72% (National Average: 72%)	75% (National Average: 72%)	67% (National Average: 65%)	68% (National Average: 67.2 %)
Meeting the Expected Level in Number	79% (National Average: 72%)	72% (National Average: 72%)	75% (National Average: 78%)	74% (National Average: 77.1 %)

KS1

	2017/2018	2018/2019	2021/2022	2022/2023
Expected Level +	69% (National Average 76%)	75% (National Average 76%)	58% (National Average: 67%)	64% (National Average: 70%)

KS2

	2017/2018	2018/2019	2021/2022	2022/2023
Multiplication Check			N/A	20% (Scoring 25) 16.34 Mean Score
Expected Level +	61% (National Average 76%)	82% (National Average 79%)	44% (National Average: 71%)	58%
Mean Score	101.3	102.2	96	101

- ✓ Monitoring of teaching and learning shows evidence of staff developing good subject knowledge and understanding of the concepts being taught. Vocabulary is being modelled consistently in most lessons, and pupils expected to use the correct mathematical terminology.
- ✓ All learning is matched appropriately to the age group being taught.
- ✓ Pupils' work in books and iPads consistently shows evidence of opportunities for intelligent practice developing the core aims of fluency, problem solving and reasoning.
- ✓ Past learning is repeatedly revisited which enables pupils to recall and build upon work from previous years.

If you were to walk into a mathematics lesson at Saint Nathaniel's Academy, you would see:

- Opportunities for pupils to recap previous learning.
- Pupils given the opportunity to discuss mathematical problems as a pair, group or class.
- Key mathematical vocabulary being modelled by adults and pupils expected to use the correct, precise mathematical vocabulary when explaining their mathematics.
- Pupils having the chance to share their answers with each other and provide feedback.
- A CPA approach being used, pupils exploring concrete, pictorial and abstract approaches to help understand a concept and deepen their learning.
- Pupils being encouraged to explain how and why they have solved a calculation or problem,

- Adults working with a carefully, selected guided group to ensure progress.
- Adult using questioning to support and challenge pupils' learning.
- Adults making opportunities to assess pupils learning within a lesson, quickly identifying any pupils who are struggling and supporting these.

Pupil Voice:

What have you enjoyed about your maths lessons and what have you achieved?

Year 1 pupil: "I enjoyed working outside to count autumn leaves. I can count in lots of ways."

Why do you think maths is important?

Year 4 pupil: "Maths unlocks a lot of opportunities across the world. It will help me to solve problems and explain my answers."




How have you been challenged in your maths this year?

Year 6 pupil: "I enjoy being challenged by open-ended questions. There are opportunities to discuss these with your friends and compare answers. It is interesting to see how different mathematicians solve things. I like it when my brain has been stretched!"

An example of skill progression within our mathematics curriculum

Mathematics aspect: Number and place value						
Reception:	Year 1:	Year 2:	Year 3:	Year 4:	Year 5:	Year 6:
Have a deep understanding of numbers to 10 . Verbally count beyond 20 , recognising the pattern of the number system.	Count, read and write numbers to 100 in numerals.	Read and write numbers to at least 100 in numerals and words. Recognise the value of each digit in a two-digit number.	Read and write to at least 1000 in numerals and words. Recognise the value of each digit in a three-digit number.	Order and compare numbers beyond 1000 . Recognise the value of each digit in a four-digit number.	Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit.	Read, write, order and compare numbers up to 10,000,000 and determine the value of each digit.

Outstanding examples of learning outcomes

		
<p><i>Children in Y1 were exploring the 2D shapes that could be created by stamping with 3D shapes. They used correct mathematical language to describe the properties of these shapes.</i></p>	<p><i>Year 2 explored arrays using practical equipment and then wrote the corresponding multiplication expressions. An example of children using different representations to access their learning.</i></p>	<p><i>KS2 took part in the St Bart's Times Table Rock Stars tournament. They improved their recall of multiplication facts whilst taking part in 'friendly' competition.</i></p>

Successes in 2022-2023

😊 **Developed staff practice and professional learning.** In school, staff have had the opportunity to engage with CPD aimed at developing deeper subject knowledge and understanding of the progression of the four operations. They have also had the opportunity to take part in peer observations to explore the principles of mastery and develop their own practice in the delivery of effective mathematics teaching.

😊 **Developed a guide to teaching Maths in Saint Nathaniel's Academy.** In school, we have developed a guide and agreed practice to teaching including progression documents, KIRFs, vocabulary and the Power Maths documents that we would be using to supplement our teaching. This is all stored in Showbie to allow staff to access all resources needed for planning and assessing.

😊 **The new maths sequence has been developed across school.** Across school, teachers are using a consistent structure and approach in delivering Maths lessons. This has had an important impact in improving consistency across the school.

😊 **Developed KIRFs document and share this across school:** Teachers are using the KIRFs and teaching these in a more structured way across the school. This will continue to be a focus until post pandemic gaps have reduced significantly.

Priorities for 2023-2024

🕒 **To further develop both teacher and teaching assistants understanding of Mastery within Maths.** To further develop both teacher and teaching assistants understanding of Mastery within Maths. Continual staff training and CPD opportunities based around mastery within Maths and developing a consistent approach and vision to tackling this within the classroom. Further training for those members of staff working 1:1 with children with SEN. So far this year: all EYFS and KS1 staff, teachers and TAs, have joined the online Basecamp community and attended half termly workshops in Mastering Number; 4 ECTS are taking part in a New to Mastery maths hub work group; 2 members of staff are taking part in a RIWG looking at Maths Leadership; 2 members of staff are working with a RIWG looking at how specialist settings can support mainstream settings in the teaching of maths with children with high levels of SEND; 2 KS2 TAs are taking part in a half-termly SKTM work group.

🕒 **Develop a Mathematics Growth Mindset across all aspects of our school.** In school, we are looking at developing Growth Mindset across both pupils, staff and our parental community. Over the course of the year, we will be collaborating with various stakeholders including parents with workshops and we will be focusing on changing our language towards Maths.

🕒 **To develop our use of manipulatives across school.** Across school, we will be improving staff subject knowledge to enable teachers and TAs to select the correct manipulatives/representations for the structure being taught.

🕒 **Vocabulary.** Across the school, we will be developing a progressive selection of vocabulary for children to use in mathematical sessions.

🕒 **Ready to Progress.** Develop a working understanding of the DfE Mathematics Guidance and Ready to Progress criteria.