



Mathematics

Policy

Policy Lead:	Chantelle Ross
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Principal: *G Rizzo*



DIOCESE OF SOUTHWELL
& NOTTINGHAM
MULTI ACADEMY TRUST

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1. Policy Aims

The Mathematic Policy aims to:

- Ensure consistency in the approach to the teaching of Mathematics across school.
- Set out expectations for all members of the St John's community with regards to Mathematics.

2. Intent and Priorities.

Intent

At St John's Academy, Mathematics is a fundamental part of each day. We believe that Maths teaches us how to make sense of the world around us. We aim to provide children with the skills in order to develop the ability to calculate, to communicate, to reason and to solve problems. This enables children to explore, understand, and appreciate relationships and patterns in both number and shape in their everyday life. We wish to promote enjoyment and enthusiasm for learning through practical activity, exploration and discussion.

We deliver the programme of study that meet the requirements of the National Curriculum 2014. We believe all children can achieve in Mathematics, and teach for secure and deep understanding of mathematical concepts through small, manageable steps. The majority of children will be taught the content from their year group only. We aim for children to become true masters of content, applying and being creative with new knowledge in multiple ways.

In teaching this way, we aim to promote confidence, resilience and competence with numbers and the number system. We wish to provide opportunities for children to challenge themselves, to develop communication skills, independence and co-operation when solving problems in order to take responsibility for their learning. This in turn will equip children with learning behaviours that will support them into their adult life.

Priorities

At St John's C of E Academy the 3 main priorities within Mathematics are:

To allow our children to develop fluency of skills through varied and frequent practice.

To utilise their fluent mathematical understanding to solve increasingly complex problems.

To provide our pupils with the confidence to make connections through mathematical thinking to the wider curriculum and beyond.

The policy is based on the expectations and aims of the 2014 Curriculum for Mathematics and the Early Years 'Development Matters' EYFS document. This ensures continuity and progression in the learning and teaching of Mathematics.

3. Aims and objectives

At St John's C of E Academy we seek to inspire children to become fluent and resilient mathematicians through a mastery approach. Building upon prior knowledge and ensuring that children acquire a deep and secure understanding of the subject.

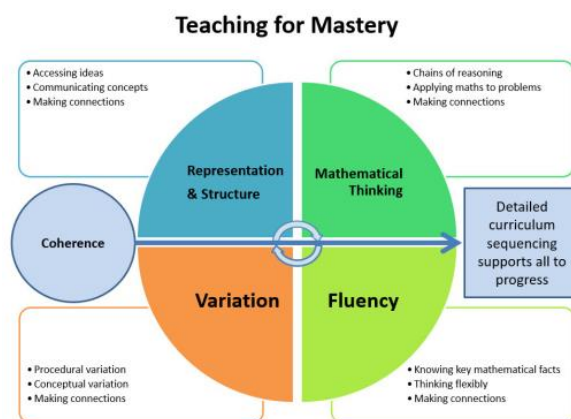
Mathematics is a creative and highly interconnected discipline that has been developed over centuries providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering and necessary for financial literacy and most forms of employment. A high quality mathematical education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the power and beauty of mathematics, and a sense of enjoyment and curiosity about the subject.' (DfE 2013)

The aim of our mathematics curriculum is to provide a foundation for understanding the world, the ability to

reason mathematically, and a sense of enjoyment and curiosity about the subject.

Teaching for Mastery aims to support all pupils to achieve deep understanding and competence in the relevant topic.

The Five Big Ideas, all informed by research evidence and classroom experience, support and structure lesson design. The diagram below helps bind these ideas together.



FLUENCY INVOLVES:

- Quick recall of facts and procedures.
- The flexibility and fluidity to move between different contexts and representations of mathematics.
- The ability to recognise relationships and make connections in mathematics.

REPRESENTATION & STRUCTURE

Mathematical structures are the key patterns and generalisations that underpin sets of numbers – they are the laws and relationships that we want children to spot. Using different representations can help children to 'see' these laws and relationships.

VARIATION

Procedural variation – This is a deliberate change in the type of examples used and questions set, to draw attention to certain features. Conceptual variation – When a concept is presented in different ways, to show what a concept is, in all of its different forms.

MATHEMATICAL THINKING INVOLVES:

- Looking for pattern and relationships
- Logical Reasoning
- Making Connections

COHERENCE

Teachers should develop detailed knowledge of the curriculum in order to break the mathematics down into small steps to develop mastery and address all aspects in a logical progression. This will ensure deep and sustainable learning for all pupils.

4. Implementation and impact

Implementation

To provide adequate time for developing maths skills, each year group will provide a daily maths lesson. Within these lessons, there will be a balance between whole class work, group teaching, practical tasks and individual practice. In all year groups, children work within mixed ability class groups. Pupils are seated in mixed ability groups when appropriate; however, teachers may group children by ability if they feel it best suits the needs of the children within that lesson.

The content and principles underpinning the 2014 Mathematics curriculum and the Maths curriculum at St John's Primary reflect those advocated by the Mastery approach found in high-performing education systems internationally. These principles and features characterise this approach and convey how our curriculum is implemented:

- Teachers reinforce an expectation that all children are capable of achieving high standards in Mathematics.
- The large majority of children progress through the curriculum content at the same pace. Differentiation is achieved by emphasising deep knowledge and through individual support and intervention.
- Teaching is underpinned by methodical curriculum design and supported by carefully crafted lessons and resources to foster deep conceptual and procedural knowledge.
- Practice and consolidation play a central role. Carefully designed variation within this builds fluency and understanding of underlying mathematical concepts.
- Teachers use precise questioning in class to test conceptual and procedural knowledge and assess children regularly to identify those requiring same day intervention, so that all children keep up.

Independent Work Expectations

At St John's it is expected that all children receive mathematical teaching every day and this should be evidenced either in pupil's books or in the Big Books. The expectation of how many independent pieces of work is completed differs, depending on the year group.

To enable best progress for our SEND children, we will make reasonable adjustments and adapt appropriately. Due to this, the maths expectations for these children may look different.

The expectations per week are as follows:

EYFS –	1 piece of independent work.
Year 1 –	Autumn Term + Spring 1 – a minimum of 2 pieces of independent work. Spring 2 – Summer Term – a minimum of 3 pieces of independent work.
Year 2 –	Autumn Term + Spring 1 – a minimum of 3 pieces of independent work. Spring 2 – Summer Term – a minimum of 4 pieces of independent work.
KS2 –	A minimum of 4 pieces of independent work.

Maths Big Books

EYFS and Key Stage 1 have a big book for maths. The expectation is that evidence of practical activities will be found within the big book, with the date and the LI/ small step.

Within KS1, evidence of daily maths practice should be found in here when it is not found in individual maths books.

Impact

St John's Academy has a supportive ethos and our approaches support the children in developing their collaborative and independent skills, as well as respect and the need to recognise the achievement of others. Children can underperform in Mathematics because they think they cannot do it or are not naturally good at it. At St John's we seek to overcome this barrier with adaptive, inspirational teaching which meets the needs of each individual learner. An appropriate level of challenge is provided to ensure children are successful and their experience of mathematics is positive.

Assessment is regarded as an integral part of teaching and learning and is a continuous process. It is the responsibility of the class teacher to assess all pupils in their class. This is mainly achieved through observation, mini plenaries, questioning, pupil self-assessment, marking and completed work. Teachers use this assessment to influence 'same day intervention' and planning to ensure they are providing a mathematics curriculum that will allow each child to progress. Individual targets are then developed from this to inform class teachers, children and parents of the key areas of learning, which still need to be developed and secured. The teaching of maths is also regularly monitored on a termly basis through workbook scrutinies, learning walks and lesson drop ins. Each term, children in Years 1 to 6 complete a summative assessment to help them to develop their testing approach and demonstrate their understanding of the topics covered.

5. Roles and Responsibilities

Principal

At St John's CofE Academy, the Principal will:

- Ensure a whole school approach.
- Keep governors, staff and parents well informed about mathematical matters.
- Provide the necessary support and resources.
- Use assessment and other data to set statutory and curriculum targets.
- Monitor the quality of Mathematics teaching.

Governors

At St John's CofE Academy, Mathematics is reviewed by governors, who monitor the quality of teaching and provision with reference to the school development plan.

Subject Lead

The subject leader for Mathematics is responsible for coordinating Mathematics through the school. This includes:

- Ensuring progression and continuity of Maths throughout the school through lesson observations, regular monitoring of outcomes of work in Maths workbooks and analysis of whole school data.
- Ensuring that all staff have access to year group plans and the relevant resources that accompany them.
- Providing bespoke CPD for class teachers and TAs.
- Advising and supporting colleagues in the implementation and assessment of mathematics throughout the

school.

- Using the data to inform the subject development plan, which will detail how standards in the subject are to be maintained and developed further.
- Developing opportunities for parents/carers to become more involved in Maths education.

Class Teacher

- To ensure progression in the acquisition of mathematical skills with due regard to the National Framework for Mathematics.
- To develop and update skills, knowledge and understanding of mathematics.
- To identify INSET needs in mathematics and take advantage of training opportunities.
- To keep appropriate on-going records.
- To plan effectively for mathematics (with parallel class partners); liaising with subject leader when necessary.

- To inform parents of pupil's progress, achievements and attainment.
- To identify children who require additional support.
- To liaise with TAs to ensure high quality provision and consistency.

SENCO and support staff

- To work with the Maths Co-ordinator to plan provision for children with SEN.
- To use objectives in the framework or BSquared to prepare Provision Maps and Support Plans.

Monitoring, Evaluation and Review

The monitoring of the standards of children's work and the quality of learning and teaching Mathematics is the shared responsibility of the SLT and the subject leader. The work of the subject leader also involves supporting colleagues in the teaching of Mathematics, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school. The school's governing body receive regular updates to inform them of the vision for continually driving forward teaching for mastery.

6. Mathematics curriculum planning

Long Term Planning

In KS1 and KS2, the curriculum includes all of the age related Programmes of study and incorporates the aims of the 2014 curriculum throughout.

Short Term Planning

To ensure whole school consistency and progression, all teachers plan from the White Rose scheme of learning. Mathematical topics are taught in blocks, to enable the achievement of 'mastery' over time. This approach is designed to enable children to progress to a greater depth of understanding. These blocks address the aims of the 2014 National Curriculum of fluency, reasoning and problem solving. White Rose 'blocks' of learning have been organised and adapted to suit the needs of our learners. To learn Mathematics effectively, some things have to be learned before others, e.g. place value needs to be understood before working with addition and subtraction, addition needs to be learnt before looking at multiplication (as a model of repeated addition). There is an emphasis on number skills first, carefully ordered, throughout our curriculum.

Subsequent blocks continue to consolidate previous learning so that the children continually practise key skills and are able to recognise how different aspects of Maths are linked. For example, when children have completed a block which has enabled them to master the multiplication of two-digit numbers, a subsequent block on area and shape might provide opportunities to use this understanding, when calculating the area of shapes with 2 digit length and width dimensions.

The order of the 'blocks' provides time for reflection and revision of previous learning, as well as engaging children with a variety of topics over a term.

The National Curriculum 2014 for Mathematics reflects the importance of spoken language in pupils' development across the whole curriculum – cognitively, socially and linguistically. The quality and variety of language that pupils hear and speak are key factors in their subject development, the focus on which begins in the EYFS. At St John's CofE Academy, we work towards providing secure foundations for mathematical language by using discussion to probe and remedy their misconceptions. Maths vocabulary forms part of every lesson and is used effectively in order to develop children's knowledge and understanding. Children are prompted and encouraged to use the correct mathematical language and terminology to discuss their mathematics and to explain their reasoning.

Mathematical Language and Vocabulary

New concepts are introduced by using a concrete, pictorial, abstract approach.

A separate, policy outlines how we teach calculations in the four rules of number. All calculations follow the calculations policy, according to individual needs.

EYFS

In the Foundation Stage, Problem Solving, Reasoning and Numeracy includes seeking patterns, making connections, recognising relationships, working with numbers, shapes, space and measures, and counting, sorting and matching. Children use their knowledge and skills in these areas to solve problems, generate new questions and make connections across other Areas of Learning and Development. All children are given many opportunities to develop their understanding of Mathematics, which involves providing children with opportunities to develop and improve their skills in counting, understanding and using numbers, calculating simple addition and subtraction problems; and to describe shape, spaces and measures. A strong emphasis is placed on the acquisition and development of mathematical language.

Continuous Provision

Continuous provision is characterised by a range of resources that are always available for children to explore and engage with. These resources are carefully selected and arranged to stimulate children's curiosity, creativity, and problem-solving skills. In Early Years and Key Stage One, continuous provision provides essential opportunities for children at the early stages of mathematical development to consolidate and apply their learning across the curriculum. Problem solving is a focus, with enhancements provided to support children to conceptualise abstract learning in real life situations. The role of the practitioner is to support mathematical learning through meaningful interactions, questioning and use of precise mathematical vocabulary. Children are encouraged to be independent learners, developing meaningful enquiry led learning and building resilience through problem solving and reasoning.

Engagement with Parents/ Carers

At St John's CofE Academy, we recognise that parents and carers have a valuable role to play in supporting their child's mathematical learning. An overview of the Maths curriculum is available on the school's website, as well as guidance in the progression in calculation methods and vocabulary used by the school. Paper copies of these documents are also available on request and half-termly newsletters, sent home by each year group, also outline the Maths topics to be covered. We encourage parent/carers to be involved by:

- Inviting them into school twice yearly to discuss the progress of their child.
- Inviting them into school for 'Open Mornings', where they can work alongside their child.
- Inviting them to curriculum meetings or circulating information via newsletters.
- Encouraging parents/ carers to help in classrooms.
- Keeping parent/carers informed verbally about children's progress, including what they are good at and what they need to improve.

7. Links with other policies

English

Mathematics links with English through vocabulary building. Within lessons, the children will be required to ask questions and comprehend questions of increasing complexity. The children will also be required to build their reading skills in order to read and comprehend maths problems within a variety of contexts.

Spiritual, Moral, Social and Cultural Development

Mathematics contributes to SMSC through raising awareness of the important contribution mathematics makes to our everyday life and that by working together we are able to achieve better results.

Computing

Mathematics teaches programmers to use abstract language, work with algorithms, self-analyse their computational thinking, and accurately model real-world solutions.

Geography

Mathematics teaches geographers the fluency skills required to map read, follow coordinates and measure for example the height of mountains.

Resources

A range of resources are provided within school to enable teachers to plan appropriate, engaging lessons. These resources are stored within classrooms as well as having a central mathematics store for resources. Resources can also be ordered to support learning with the agreement of the principal.

Health and Safety

The school is committed to provide and maintain a safe and healthy working environment for staff and pupils at all times. We aim to ensure that safe working methods are in place and provide safe equipment. We comply with statutory requirements and where possible best practice.

We provide effective information, instruction and training to enable staff and pupils to be competent in their roles and in tasks they undertake.

We ensure adequate resources are made available to fulfil our health and safety responsibilities and objectives.

Class Teachers follow the particular health and safety measures to be adopted in their own teaching areas as laid down in the relevant Code of Practice, if issued, and to ensure that they are applied.

All accidents, defects and dangerous occurrences are reported to the Headteacher.

Pupils allowing for their age and aptitude, are expected to exercise personal responsibility for the health and safety of themselves and others. They should observe standards of dress consistent with safety and/or hygiene and observe all the health and safety rules of the school and in particular the instructions of staff given in an emergency.

They are expected to use and not wilfully misuse, neglect or interfere with things provided for their health and safety.

8. Equal Opportunities in Mathematics

Adaptation and support

This is incorporated into all mathematics lessons and is done in various ways, such as:

- Setting challenging age related knowledge, reasoning and problem solving tasks based on systematic, accurate assessment of pupil's prior skills, knowledge and understanding.
- Small, differentiated target steps for all children to move through at a pace that suits their needs.
- Timely support and intervention; systematically and effectively checking pupil's understanding throughout lessons.
- Ensuring that marking and constructive feedback is personal and of a consistently high quality - enabling pupils to understand how to improve and develop their work - with planned in time for children to respond to feedback.
- Range of practical, real-life resources used to support all stages of learning within the class.

➤ Same day intervention delivered where needed.

Inclusion/ Equality

Every child has an entitlement to a broad, balanced, meaningful and relevant maths curriculum. We recognise that each child is unique in terms of characteristics, interests, abilities, motivation and learning needs. Our school aims to be an inclusive school. We actively seek to remove the barriers to learning and participation that can hinder or exclude pupils. This means that equality of opportunity must be a reality for our children. We ensure this by tracking, monitoring and targeting the different individual and groups of children within our school to ensure minimal risk of underachievement. All children have equal access to the curriculum regardless of their gender, race, cultural background or disability.

9. Assessment and Recording

Each term, year groups (year 1 – year 6) will complete a diagnostic test (NFER) which allows rigorous question level analysis to be carried out to further inform planning. Summative data uses a combination of test scores and evidence in books.

Within Early Years, class teachers complete observations and summative assessment to be able to form judgements on progress and attainment.