St John's Church of England Academy

Part of the

Durham & Newcastle Diocesan Learning Trust

Mathematics Policy 2021/2022

Contents

Rationale

This policy outlines the teaching, organisation and management of the mathematics taught and learnt at St. John's C.E. Academy and its importance as an essential life-skill. It is the responsibility of all staff to ensure that the Maths curriculum is delivered in accordance with our Christian values and ensures that all children reach their full potential and flourish as children of God.

The Nature of Mathematics

Mathematics is a tool for everyday life. It is a whole network of concepts and relationships that provide a way of viewing and making sense of the world. It is used to analyse and communicate information and ideas and to tackle a range of practical tasks and real life problems. It also provides the materials and means for creating new imaginative worlds to explore.

Using the Programmes of Study from the National Curriculum, it is our aim to develop:

- A positive attitude towards mathematics and an awareness of the fascination of mathematics.
- Competence and confidence in mathematical knowledge, concepts and skills.
- An ability to carry out calculations efficiently, both mentally and through written methods.
- An ability to solve problems, to reason, to think logically and to work systematically and accurately.
- Initiative and an ability to work both independently and in cooperation with others.
- An ability to communicate mathematics.
- An ability to use and apply mathematics across the curriculum and in real life.
- An understanding of mathematics through a process of enquiry and experiment.

Knowledge Skills and Understanding

At KS1 and KS2, teachers use the National Curriculum, supported by the White Rose Maths Hub, to ensure that all aspects of the National Curriculum Programme of Study are taught.

Breadth of Study

Through careful planning and preparation, we aim to ensure that children are given opportunities for:

- Practical activities and mathematical games.
- Problem solving.
- Individual, group and whole class discussions and activities.
- Open and closed tasks.
- A range of methods of calculating.
- Practising and consolidating the skills of using and applying.
- Working with computers as a mathematical tool.
- Activities which are short in duration and those which can be developed over a longer period.
- Developing personal qualities and a positive attitude to mathematics.

Scheme of Work

Our school scheme of work is based on the White Rose progression document, which ensures that learning is cumulative and that subject matter is revisited regularly. This ensures that children know more, remember more and are able to apply previously learnt skills to a wide range of problems.

Planning and Organisation

Each teacher is responsible for the mathematics in their class, supported by the mathematics coordinator. The approach to the teaching of mathematics within the school is based on these key principles:

- A mathematics lesson every day.
- An emphasis on rehearsing, sharpening and developing mental calculation.
- Revisiting previous learning regularly so that the children know more and remember more.
- A clear focus on direct, instructional teaching and interactive oral work through worked examples.
- Use of the concrete-pictorial-abstract approach to teaching mathematics.
- An opportunity to assess learning through teacher, self and peer assessments

Each class receives a daily lesson of between 45min (KS1) and 60min (KS2). Lessons are planned to be engaging and stimulating with non-negotiable time assigned to counting, mental/oral work, revisiting previous learning, and learning and applying new concepts. Teachers of Reception Class base their teaching on the Early Learning Goals for Number and Numerical Pattern. Towards the end of Reception, teachers aim to draw the elements of a daily mathematics lesson together so that by the time children move into Year 1, they are familiar with a 45-minute structured lesson.

Problem Solving

The National Curriculum states:

'Mathematics is a creative and highly inter-connected 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 mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics and a sense of enjoyment and curiosity about the subject.'

At St John 's, we want children to become natural problem solvers. Once children are familiar with a concept, teachers move the children on to applying those skills in a range of situations. This can take numerous forms such as real life problems, investigations, seeking solutions and exploring patterns. Teachers are encouraged to extend the application of mathematics to real life problems.

Differentiation

Teachers have high aspirations of all pupils and aim to progress through the curriculum at the same pace. Where children need extra support, the following strategies may be used:

- Stepped activities, which become more difficult and demanding as the children become more proficient but cater for the less able in the early stages.
- Common tasks, which are open-ended activities/investigations where differentiation is by outcome.
- Resources to support pupils depending on ability e.g. counters, multiplication squares, 100 squares, number lines, mirrors, partitioning numbers, interactive whiteboard resources.
- Grouping according to ability so that the groups can receive support as appropriate.
- Support from either the class teacher or designated support staff. Support is allocated according to the needs and priorities of the children and is based on ongoing assessment.

- Assessment for learning is used to ensure that teachers are prepared to quickly act on on-going assessment to stretch higher attaining pupils and support lower attaining pupils.

Additionally, each class runs daily intervention groups that provides extra support for those children who are at risk of falling behind. These can be reinforcing prior learning or pre-teaching to ensure the children have the necessary skills, knowledge and understanding to access the daily lesson.

Special Educational Needs

Teachers include all pupils fully within the daily mathematics lesson and their involvement is expected throughout. We strive to remove barriers to learning and to facilitate success through intervention, differentiated activities, a variety of teaching and learning styles, resources and support. Where applicable, children's One Plans and EHCPs incorporate suitable objectives.

Speaking and listening is essential in maths. Children generally enter St. John's with lower than average language development and the school recognises that maths lessons need to support this. Therefore, teachers specifically teach new mathematical vocabulary and give children opportunities to use this language through questioning and encouraging mathematical discussion.

Within the daily mathematics lesson, teachers not only provide activities to support children who find mathematics difficult but also activities that provide appropriate challenges for children who are high achievers in mathematics. The White Rose provide activities for children around reasoning and problem solving, which allow all children to apply their mathematical skills and knowledge to a range of situations that increase in complexity, providing plenty of opportunity to challenge the more able.

Online Learning

The school subscribes to Mathletics, an online programme that provides personalised learning with in-built assessment. This is accessed by all children from Years 2 to 6 for homework and for remote learning. Teachers use the data that the programme produces to diagnose where extra support is needed on an individual level. By the end of Year 4, all children are expected to know their times tables and corresponding division facts to 12 x 12. St. John's uses Times Tables Rock Stars to ensure the children are fluent in their times tables. Data from the programme is used to diagnose children's strengths and areas for development so that targeted intervention and support can be used to ensure they are fluent by the end of Year 4. For Key Stage 1 children, and Key Stage 2 children with significant gaps in their understanding of number, the school uses Numbots in a similar way to Times Tables Rock Stars. All online programmes can be accessed from home and are used as part of the children's weekly homework.

Equal Opportunities

There is a commitment to high achievement in mathematics regardless of gender, race, class or disability. The school monitoring cycle ensures that all children are given a high quality mathematics education and support is provided where necessary.

Recorded Work

There are occasions when it is both quick and convenient to carry out written calculations. It is also important to record aspects of mathematical investigations. Children are taught a variety of methods for recording their work and they are encouraged and helped to use the most appropriate and convenient method of recording. Children are encouraged to use mental strategies before resorting to a written algorithm.

For recording work in books, it is school policy that the following pattern is used:

Foundation:	Plain exercise books for recording when appropriate.
KS1:	2 cm squares.
Year 3:	1 cm squares.
Year 4:	1 cm squares. Gradually move to 7 mm squares when individual children are ready.
Year 5:	7 mm squares.
Year 6:	7 mm squares.

All children are encouraged to work neatly when recording their work. One square should be used for each digit and one for an operation or other symbol. When working with decimals, the decimal point should be placed on the vertical line between two squares. When involved in routine practise of calculations, the children are encouraged to fold a page in half horizontally, creating two columns.

Marking

Work in mathematics can generate a great deal of marking and it is recognised that this can create a large workload for teachers. The children may self-assess exercises that involve routine practise with support and guidance from the teacher. This helps to foster independence in the children.

All work is collected at the end of each session to enable teachers to make assessments that will inform future teaching and learning. Marking should be both diagnostic and summative and we believe that this is best done through conversation with the child.

Assessment and Record Keeping

Ongoing assessments take place throughout a maths lesson, which informs future teaching and learning. Using these formative assessments, teachers plan next steps and interventions to ensure that no child is left behind. Summative assessments take place at the end of each term, providing teachers with an overall picture of how the child is performing.

Weekly Arithmetic Practise

From Years 2 to 6, each class carries out a weekly arithmetic paper, based on the format of the Year 6 arithmetic test. Each week, the tests are marked as a class and immediate feedback is given to the children so they can aim to improve their score the following week. The class teacher tracks the scores so that extra support can be given if a child progresses too slowly.

Reporting to Parents

Written reports are completed before the end of the Summer term and Parent Consultation Meetings are held in the Autumn and Spring terms. At these meetings, parents are given the opportunity to discuss their child's progress and subsequent targets.

Parental Involvement

- Parents are invited into school once per year to observe Maths being taught. This serves as support for parents in assisting with their child's learning at home.
- Parents are invited to assemblies to celebrate children's achievements in mathematics.

- Parents are sent a termly newsletter by their child's teacher outlining the maths content that the children will be taught that term.
- The Maths area of the school website provides parents with videos, demonstrating how we teach different methods of calculation. These are shared termly on the schools social media pages.

Homework

At St. John 's, we believe that homework is best when it is simple and personal to the child. We therefore use our online programmes, Mathletics, Times Tables Rock Stars and Numbots as our Maths homework. These programmes put little pressure on parents, who may find maths difficult themselves, and are personalised to the individual child. Teachers are able to easily monitor the success of a child and it does not place an unnecessary burden of marking on staff.

Resources

Teachers organise an area within the classroom dedicated to mathematics resources. This area is easily accessible to all children who should be familiar with the resources. Resources that are not used or required regularly are stored centrally in the Key Stage 2 corridor. Each class must have a Maths working wall, which is relevant, current and support what the children are learning at any given time.

Monitoring and Evaluation

The mathematics coordinator monitors and evaluates the quality of mathematics throughout the school through discussions with children, monitoring planning, work scrutinies, lesson observations and learning walks. The Maths co-ordinator keeps an action plan based on the findings from monitoring and evaluation, which is shared with the link Academy Councillor.

Local Academy Council

The school has a mathematics link Academy Councillor, who is responsible for ensuring this policy is enforced. This happened through:

- Discussions with children.
- Discussions with staff.
- Discussions with the Maths coordinator.
- Observing lessons.
- Reviewing children's books
- Monitoring of the Maths action plan.

The Governing Body meets annually to report on and monitor progress/attainment, evaluate performance and consider areas for development. This policy will be reviewed in May 2023.

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