

Maths Policy 2023

'With Jesus we can achieve what we dream and believe' School Mission

Overview

At St. Michael's, our Explore Curriculum is built around the National Curriculum and contributes to our school philosophy of teaching and learning as expressed through our mission statement.

The new National Curriculum states that: "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."

Key Attributes for our Mathematicians:

- Our Mathematics lessons reflect a CPA approach: Concrete (the use of hands-on manipulatives), Pictorial (representing Mathematical concepts through images and diagrams), Abstract (fluency in number)
- Curiosity to investigate and make Mathematical statements with confidence
- Reasoning and problem solving around Mathematics in every lesson and using high level vocabulary to be able to talk like a Mathematician
- Daily retrieval practice so we know that our children are able to know more and remember more
- Resilience to be able to take on a challenge and overcome mistakes to take exciting new steps in learning and exploring
- The ability to make connections and apply Mathematical skills to all areas of the curriculum.

Intent

Maths is the foundation for understanding the world and we want our children to know the purpose behind their learning and to apply their knowledge to their everyday lives.

At St. Michael's, we provide high-quality Mathematics through our **Explore Curriculum** that is challenging, **enjoyable** and **ambitious** for all of our learners and builds a schema to support and develop children's cognitive load. Underpinned by the National Curriculum, our Mathematics curriculum allows **progression** and **skill** for our children to have the opportunity to **go beyond the National Curriculum** in order to become fluent in number as well as being able to **conquer** Mathematical reasoning, with increasing articulacy and accuracy.

We encourage our children to take risks, **explore** Mathematics and make the connections needed to enjoy a greater depth of learning and secure their understanding. Our inclusive Mathematics curriculum is **sequenced** in an effective way, is **adaptive** and provides challenge for all children from EYFS up

to Year 6 and our teachers choose to progress to new learning when our learners have a secure understanding and can apply their learned skills fluently.

Our curriculum aims to develop mathematical competencies and to have our children understand the power of Mathematics and how it can be applied across the curriculum. By the time our children reach the end of their Primary Mathematics journey, we endeavour for them to be able to use mathematics in different contexts, **talk like a Mathematician** by using the vocabulary they have obtained through explicit teaching and retrieval practice and have a mathematically curious mind.

Implementation

Our Mathematics Lesson Structure

There are four main components to our lessons at St. Michael's. Each part is crucial to our learners' Mathematical understanding and progression throughout each lesson. These components are: Retrieve and Reason, I do We Do, You Do and Review. Our 4-part lesson shows consistency across our school and provides our children with a familiar structure to aid their learning.

1. **Retrieve & Reason** – this is a crucial part of teaching at our school and allows children to recall and use what they have learned in previous lessons, topics, terms and year groups; **learn more and remember more**. Retrieval helps to embed learning into the long term memory. We then work through a word problem so all of our children are challenged in their mathematical abilities and have the chance to **talk like a Mathematician** at the beginning of a lesson.
2. **I Do, We Do** – this is where the main teaching happens! Our teachers **model** and talk through what the children will achieve during the lessons and demonstrate strategies that help our children work independently. The children have the chance to **explore** their new learning through partner and whole class discussion during the 'We Do' part of our lesson. As the children begin to gain an understanding of their objective, they can choose to go on to work independently.
3. **You do** – the children get a chance to use what they have learned and put it into practice. This is an opportunity for our children to use their skills and different support is offered by our staff where needed. Worked examples are visible for the children as they embed their new skill.
4. **Review** – the children will self-assess or self/peer mark their work so get a good understanding of their progress during the lesson. We also review by challenging the children with **reasoning** questions, having group discussions and writing themselves a 'top tip' to remember. This part of the lesson can also be an opportunity for the class teacher to address misconceptions or re-teach a concept if needed. The 'Review' part of the lesson is all based around what the children need and can change on a lesson-by-lesson basis.

Impact

The impact of our curriculum will show through assessment. Before each new topic, we complete pre-topic assessment tasks that inform the planning and teaching of the unit of work. They provide an evidence base for what our children have retained and are able to process before new learning is applied.

We also 'live mark' as a form of formative assessment throughout lessons, which allows our teachers to support learners, address misconceptions, adapt and challenge where needed. This knowledge then impacts daily planning of Mathematics lessons to support and develop specific areas.

Summative assessment is used at the end of each term. Years 2 and 6 will complete their year group specific test papers and years 1, 3, 4 and 5 complete NFER tests. We then adopt a diagnostic approach to assessment and complete question level analysis; knowing where a child is and where they need to get to is at the heart of all of our teachers' planning and is vital in ensuring children leave St. Michael's as confident, fluent and life-long mathematicians.

Aims & Objectives:

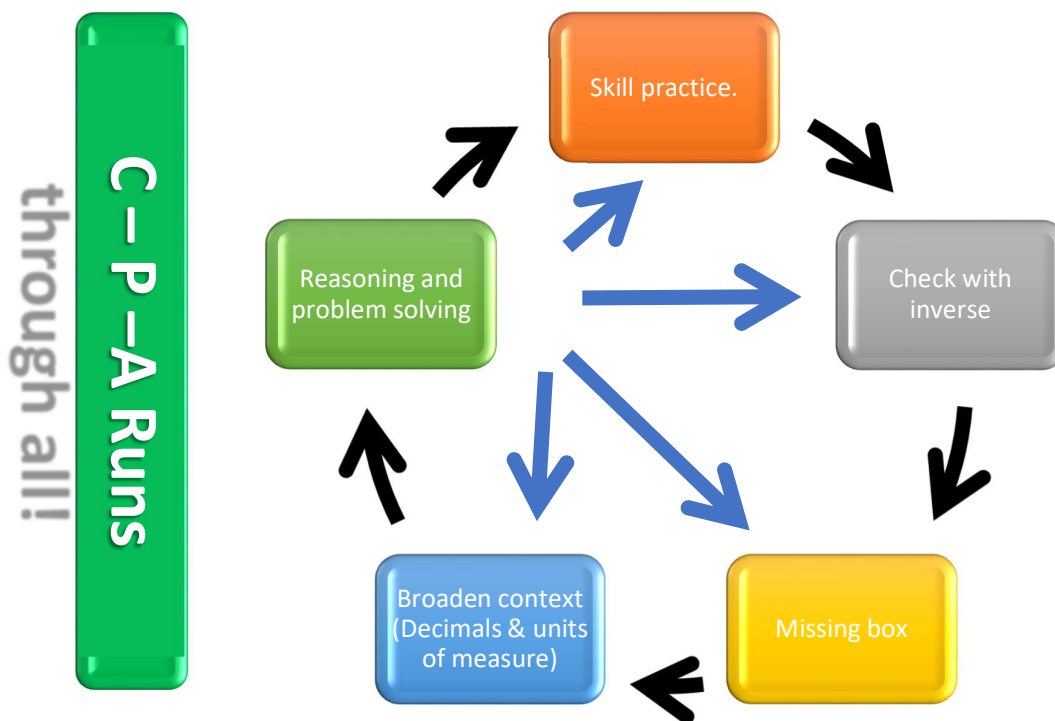
Using the Programmes of Study from the National Curriculum the aims of mathematics are:

- To promote enjoyment and enthusiasm for learning through practical activity, exploration and discussion
- To create a lively, exciting and stimulating environment in which all children can learn Maths
- Ensure the delivery of Maths is filled with cross curricular opportunities
- To promote confidence and competence with numbers and the number system and to use mathematical vocabulary to reason and explain.
- To develop the ability to solve problems through decision making and reasoning in a range of contexts
- To develop a practical understanding of the ways in which information is gathered and presented.
- To explore features of shape and space and develop measuring skills in a range of contexts
- For children to challenge and stretch themselves and take risks in their learning
- To promote the concept that acquiring mathematical knowledge and skills provides the foundation for understanding Maths in everyday life.

Framework.

The National Curriculum Program of study is taught in organised blocks using the White Rose Revised Planning. These units also link and build upon the framework or units outlined in the Ready To Progress Criteria. (2020) This ensures previous knowledge is built upon in a systematic way. Specific class based teaching uses a variety of resources rather than one particular scheme. This allows the teacher and adults working with the children to tailor and select resources which match their prior knowledge.

Each unit or block of work will include aspects from the following model. There is no set starting point, some topics may be best building upon solid skills, where as at other times it is more beneficial to introduce reasoning.



Strategies

It is important that children are allowed to explore Maths and present their findings not only in a written form but also visually; to that end the school will adopt the CPA approach: concrete, pictorial, abstract. This will allow the children to experience the physical aspects of Maths before finding a way to present their findings and understandings in a visual form before relying on the abstract numbers.

At St. Michael's we follow the White Rose Calculation Policy (See Appendix 1) We also use White Rose Maths plans as an aid to our planning.

Mathematical vocabulary should be displayed so that children use this in the communication of their understanding. There should be maths work on display in classrooms and in other areas of the school in order to encourage a positive attitude and enthusiasm towards mathematics for all groups of children.

Mathematical materials, equipment and Basic resources are stored in each classroom. The Mathematics Co-coordinator should be informed when equipment needs replacing or supplementing.

The children are shown how to take care of equipment and resources and progressively encouraged to select materials suitable for the task in which they are engaged.

Links to other curriculum areas

Mathematics contributes to the children's spiritual development, finding shapes and pattern in nature, seeing order, logic and pattern that number offer. Opportunities to reinforce mathematical concepts in other subject areas as well as in the outside environment will be encouraged and provide.

The role of the subject leader:

The role of the subject leader is to:

to provide a strategic lead and direction for the subject

- to support and offer advice to colleagues on issues related to the subject;
- to monitor pupil progress in that subject area;
- to provide efficient resource management for the subject

It is the role of the Maths subject leader to keep up to date with developments in Maths , at both national and local level. They review the way the subject is taught in the school and plan for improvement. This development planning links to whole-school objectives. Each subject leader. The maths subject leader is supported by a maths team drawn from teachers across the key stages.

Monitoring and Assessment:

Teachers will work collaboratively within year groups to ensure coverage and clear progression. Within each year group they will work to plan and deliver lessons that suit the particular learning styles of the children within the year group. The White Rose planning framework and accompanying resources are used as a spine. Teachers continuously assess the children informally (formative assessment) through their marking and interactions with the pupils during lessons.

On a daily basis pupils receive both verbal and written feedback as teachers “live mark” within the lesson. This shows when they are ready to progress to the next aspect of their learning. At the end of each unit of work or “Spine” children complete the end of unit assessment. This provides the teacher with key information that can be addressed within subsequent lessons.

Across a range of lessons children should be allowed to engage in mathematical discussion (talk partner or group work), investigations, problem solving, practical experiences and written methods, as well as allowing for time to demonstrate their understanding through gap tasks. In EYFS children’s attainment and progress is tracked on a daily and weekly basis.

NFER Testing: As part of our formative assessment year’s 3, 4 & 5 conduct NFER test in the autumn term, as a baseline assessment, and then again in the summer term to identify progress and inform attainment standards.

Multiplication tables

Times tables are taught through various aspects of maths lessons. They are taught as a main session and practised on a daily basis to aid retention. We also use Times Tables Rock Stars as a school-wide support for learning times tables. TTRS is an interactive online learning tool and is used to support the learning of multiplication in school and is accessible at home. Children are encouraged to access it at home to support their learning.

Special educational needs & disabilities (SEND)

Our Mathematics lessons are inclusive to all children and we embrace **adaptive** teaching to ensure that all children are accessing learning. For example, our teachers will use time to pre-teach vocabulary or basic skills to children who need support so they are able to access the learning during a lesson. Our teachers will also adapt the levels of support given to children, whether that be through the use of manipulatives, digital support or adult support. While planning lesson, our teachers are aware of the individual needs of our learners and plan to adapt lessons suitably.

Where required, we incorporate suitable objectives from the National Curriculum to meet the needs of children and these are taken into consideration during planning. Targets are set for individual children and are worked upon during all maths lessons. Maths focused intervention groups help children with gaps in their learning and mathematical understanding and those children have the opportunity to benefit from small group, precision teaching sessions which are delivered to a high standard by trained staff. Teachers have a responsibility to provide support for children with SEND and to also provide activities that provide sufficient challenge for all children at all levels.

Equal Opportunities

We strongly encourage a positive attitude towards Mathematics to ensure that all children, regardless of their gender, race, language or ability, have the opportunity to develop an enjoyment and confidence in Maths. Our aim is to ensure that all children know more and remember more, are able to develop and progress in their learning. Teachers plan their lessons to be inclusive to all children and ensure a greater depth in learning. Our CPA (Concrete, Pictorial, Abstract) approach is **adaptive** to all learners, encourages ambition and meets our equality, diversity and aspirations themes across our school.

Parental Support and Homework

We recognise that parents make a significant difference to the pupils' progress in maths and encourage this essential partnership. Homework follows the school's Homework Policy and is used for the following purposes:

To practice a skill

To learn something by rote such as times tables and formulae

To revise for an assessment

To explore a mathematical problem or question

To research a topic

Currently the school subscribes to Times Tables Rock Stars & Numbots online resources. Children are provided with a username and password which can be accessed at home. From Y3 onwards weekly access at home to the resources is actively promoted as part of our homework policy. Children who do not have access to online learning are given further opportunities in school and supported with paper based resources.

Monitoring of standards across the school

In conjunction with the teaching and learning team, the maths lead will ensure that the standard of teaching and learning is consistently good across the school. This will be done using the following strategies:

- Robust and tailored CPD including staff meetings & external courses.
- Book sampling & monitoring.
- Lesson Drop in's and observations.
- Monitoring of Active & relevant to learning working walls.
- Monitoring marking and feedback books kept by teacher to ensure they are being used to inform planning, address misconceptions and guide challenge.

Appendixes Appendix 1: Calculation Policy (white rose adapted)

Maths Lead: Hannah Deans

Date Approved by Governing Body:

Chair Governors: Jeanette Riley

Headteacher: Alyson Rigby

Next Review Date:

