MATHEMATICS POLICY

St Mary's & St Benedict's
RC Primary School

Together in God's family, we grow in faith, knowledge & love to reach our full potential, and to become the people that we are created to be.

Policy Agreed: **February 2023**
Review Date: **February 2025**

Our School Ethos

At St Mary's and St Benedict's (SMSB) RC Primary School we aim for our curriculum to inspire pupils to be life-long learners with a sense of service to the world that they live in and the people that live in it with them.

We believe our pupils will be life-long learners if they are able to be:

- ✓ confident,
- ✓ independent,
- ✓ curious,
- ✓ open-minded,
- ✓ enthusiastic,
- ✓ observant,
- ✓ co-operative and
- ✓ resilient individuals.

In order to develop these qualities within our pupils we intend for our curriculum to provide opportunities for children to:

- Be curious and ask questions
- Evaluate and reflect
- Work collaboratively
- Apply their learning
- Solve problems whilst developing resilience
- Communicate their learning
- Challenge ideas

Vision for Maths

At SMSB RC Primary School, we strive to promote a love of maths that sparks curiosity and enjoyment in our children. We recognise fluency and variation skills are essential for children to appreciate the power of maths, and we believe a high-quality maths education is crucial so our children can become active contributors to life and work in Britain.

Maths Intent

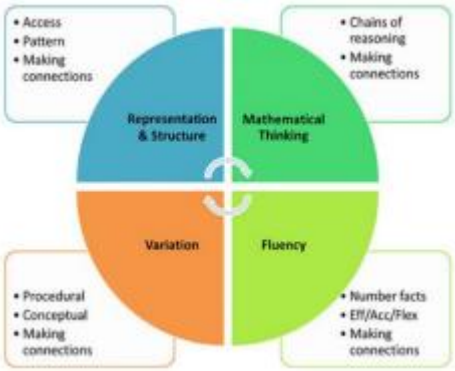
At St. Mary's and St. Benedict's Primary School, we aim to equip pupils with the tools to understand Maths. These tools include reasoning, problem solving and the ability to think in abstract ways. Mathematics is integral to all aspects of life; with this in mind, we strive to ensure that our children develop a healthy and enthusiastic attitude towards mathematics that will stay with them and support them in the next stage of their education and beyond. At each stage of learning, children are actively supported to reach their full potential as mathematicians.

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

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

Maths Implementation

All teachers follow a termly overview plan and are encouraged to design lessons using a range of resources, including, but not limited to, the White Rose Maths Scheme of Learning from the White Rose Maths Hub. A typical Maths lesson provides the opportunity for all children, regardless of their ability, to become confident and capable learners. We are committed to building on prior learning and enabling our children to demonstrate a deep, conceptual understanding of each topic that they can develop over time. They are encouraged to develop fluency in their recall of key facts and a whole school approach to the teaching of calculation strategies is deployed across the school. This ensures a consistent and progressive approach and prepares our children for the upper key stage 2 curriculum. Reasoning and problem-solving skills are explicitly taught to enable children to become independent learners who are prepared to take risks. Additional time is allocated to arithmetic to ensure key skills in calculation are retained. The teaching of multiplication facts continues to be a discrete focus, where the applications of these skills are essential for accessing other areas of mathematics. To make the learning relevant, cross-curricular links are made wherever possible and children are encouraged to apply skills from all areas to complete real-life challenges and give learning a sense of purpose.



Coherence	Representation & Structure	Mathematical Thinking	Fluency	Variation
Lessons are broken down into small connected steps that gradually unfold the concept, providing access for all children that enables them to apply the concept to a range of contexts.	Representations used in lessons expose the mathematical relationships and structure being taught.	Ideas are worked on by the children: thought about, reasoned and discussed with 'talk partners'.	We promote quick and efficient recall of facts and procedures and the flexibility to move between different contexts & representations.	We aim to represent the concept being taught in more than one way. We encourage children to pay attention to what is kept the same and what changes.

To provide adequate time for developing key skills in fluency, reasoning and problem solving, each class teacher will provide at least five daily mathematics lessons per week. Additional mathematics may be taught within other subject lessons when appropriate.

Class teachers provide high quality maths lessons ensuring that there is emphasis on direct whole-class teaching, groups/partner work and independent work. We use a range of approaches (concrete, pictorial and abstract methods) following the White Rose scheme of work, teaching mathematical concepts through small steps. Staff are expected to teach and model correct mathematical language, which scaffolds children's reasoning and explanation skills – sentence stems are used to develop this.

<u>Maths in Early Years</u>

In EYFS (Nursery and Reception) we follow the EYFS framework. Teachers ensure the children learn through a mixture of adult led activities and child-initiated activities both inside and outside of the classroom. Mathematics is taught through an integrated approach using material from NCETM Mastering Number, White Rose Maths and Numberblocks. The children have a wide range of structured play resources available to them throughout the year - this is known as "continuous provision". The adults model the use of these resources and the appropriate mathematical language as they support the children in their play. Across Reception and through to KS1, we have implemented a new and exciting Mastering Number maths project. Our overarching aims are for children to:

- make good progress towards the Early Learning Goals
- be confident in communicating their ideas
- develop a positive attitude towards maths and be willing to 'have a go'

Our mastering number sessions cover all of the number work that will support the children to meet the Early Learning Goals and the learning trajectories that build children's understanding and help them make connections between different mathematical concepts.

Maths in Years 1 and 2

In Years 1 and 2, the focus of Maths is to ensure the children develop confidence and mental fluency with whole numbers, counting and place value. This often involves working with numerals, words and the four operations (+ - x ÷). The children should be precise in using and understanding place value and know number bonds to 20.

The children also develop their ability to recognise, describe, draw, compare and sort different shapes. The children will use a range of measures to describe and compare different quantities (such as length, mass, capacity/volume, time and money). SMSB Primary School is taking part in the National for Excellence in the Teaching of Mathematics (NCETM) project to support the teaching of basic maths skills in our school. This project aims to secure firm foundations in the development of good number sense (a deep understanding of number). Each class in KS1, has a daily 'Mastering Number' session. Over the year, the children will experience using a range of resources and representations, including a small abacus-like piece of equipment called a rekenrek.

Our Y2 pupils are prepared for KS1 SATs

Maths in our Lower Key Stage 2 (Years 3 and 4)

In Years 3 and 4, the focus is to ensure the children become increasingly fluent with whole numbers and the four operations (including number facts and place value). Pupils begin to develop efficient written and mental calculations with increasingly large whole numbers. They begin to develop their ability to solve a range of problems, including simple fractions and decimal place value. The children develop mathematical reasoning to help them analyse shapes and their properties and confidently describe their relationships.

By the end of Year 4, children are expected to be fluent with their multiplication tables up to and including the 12 times table and be able to apply this knowledge in their work.

Pupils in Year 4 are prepared for the Multiplication Tables Check (MTC)

Maths in our Upper Key Stage 2 (Years 5 and 6)

In Years 5 and 6, the focus of Maths is to ensure that children extend their understanding of the number system and place value to include larger integers. Pupils should be able to make connections between multiplication and division with fractions, decimals, percentages and ratio. Children should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems that demand the use of efficient written and mental methods of calculation. Children are introduced to algebra as a means for solving a variety of problems.

The children's understanding and knowledge in geometry and measures consolidates and extends the knowledge they have developed in number; children should be able to classify shapes with increasingly complex geometric properties, using the vocabulary they need to describe them with accuracy and confidence.

Our Y6 pupils are prepared for KS2 SATs

Maths Impact

We always strive for, *"A high-quality mathematics education therefore providing 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."*

The impact of our Maths curriculum is that at the end of Key Stage 2 our pupils achieve and make progress in line with other pupils nationally, evident through:

- fluency in their recall of key number facts and procedures
- accuracy in the formal calculation methods for all four operations
- the flexibility and fluidity to move between different contexts and representations of mathematics
- the ability to recognise relationships and make connections in mathematics
- the confidence and resilience to reason mathematically and solve a range of problems

Assessment within Maths

Assessment for Learning is fundamental to raising standards and enabling all children to reach their potential. Assessment in mathematics takes place daily using a range of strategies such as: questioning, spot marking, verbal feedback and written feedback. Children also use a purple pen to 'fix' any corrections, respond to feedback or complete an extension/next step given by the teacher.

Assessment is an integral part of the maths curriculum and not an addition to it. Children's work in mathematics is assessed from three aspects:

1) Informal, formative assessments are made continually by questioning the children, observing and monitoring their work. These short-term assessments are closely related to the learning objectives for the lesson and help inform next steps.
2) Assessments take place at the end of a unit using White Rose Maths spreadsheets to enable staff to identify gaps in learning. This information also informs interventions.
3) Summative assessment is less frequent - this is the use of tests or more formal assessments to find out what children have learnt. We use National Test-style (NTS) maths papers whilst confidently measuring termly performance against thousands of pupils nationally.

Statutory Assessment Tests (SATs) are used for children in Year 2 and 6, plus children in Year 4 are also required to take a multiplication tables check (MTC) in the Summer Term, this is optional in 2021. The purpose of the check is to determine whether pupils can fluently recall their times tables up to 12, which is essential for future success in mathematics.

A whole school tracking system is used to closely monitor children's progress throughout the school. Teacher assessments are entered termly and are closely analysed to identify children working at greater depth or who are at risk, appropriate intervention is then put in place to close gaps.

We see the relationship with parents as very important in supporting their children's mathematical skills. There is a dedicated maths page on our school website with provides specific documents for parents outlining what is covered in each year group and ways they can support at home. Parents also receive an end of year report which provides information on their child's outcomes and progress.

Routes Through Calculation

Our routes through calculation have been devised to meet requirements of the National Curriculum for the teaching and learning of mathematics, and are also designed to give pupils a consistent and smooth progression of learning in calculations across the school. Many of these examples also derive from the White Rose calculations policy and tie in with the White Rose schemes of learning used across the school. Children have access to a wide range of counting tools and apparatus throughout.

It is important that any type of calculation is given a real-life context or problem-solving approach to help build the children's understanding of the purpose of calculation, and to help them recognise when to use certain operations and methods when faced with problems - this is a priority within our lessons. Children are taught and encouraged to use the following processes in deciding what approach they will take to solve a calculation, to ensure they select the most appropriate method for the numbers involved: "Can I do it in my head using a mental strategy?" "Could I use some jottings to help me?" "Should I use a written method to help me work it out?" Mathematical vocabulary is important with each operation so this is a key part of their learning. For example, we will use the term 'ones' and 'units'. E.g. Th, H, T, U /Th H T O or 1000s 100s 10s 1s. Vocabulary specific to each method is shown within each route through calculation. Documents for each route through calculation are shared on our school website.

Times Tables

At SMSB RC Primary School, we believe that through a variety of interactive, visual and engaging techniques, all children can achieve the full multiplication tables knowledge by the time they leave Primary School. The new National Curriculum (2014) states that by the end of year 4, pupils should be able to recall multiplication and division facts for multiplication tables up to 12x12. Children in Year 4 are also required to take a multiplication tables check (MTC) in the Summer Term. The purpose of the check is to

determine whether pupils can fluently recall their times tables up to 12, which is essential for future success in mathematics. This means it is important for the children to learn their multiplication tables facts and to be able to recall them quickly and accurately.
We teach times tables using the following progression:
Year 1 – Be able to count in multiples of twos, fives and tens
Year 2 - Be able to recall 2, 5 and 10 multiplication and division facts
Year 3 - Be able to recall 3, 4 and 8 multiplication and division facts
Year 4 - Be able to recall 6, 7 and 9 multiplication and division facts
Year 5/6 - application of multiplication and division facts to problem solving

To support children's learning of multiplication tables we have a Multiplication Table Challenge and children have access to Times Tables Rockstars. This is an online resource that Years 2-6 use to aid the teaching and fluency of Multiplication and division facts.

Special Educational Needs

Children with additional needs are supported by using practical resources and differentiated activities where needed. They are also further supported by additional support staff whenever possible. Where applicable, children's provision maps will incorporate suitable objectives from the National Curriculum or the EYFS curriculum and teachers keep these objectives in mind when planning work. In addition to quality first teaching, interventions also take place during the afternoons and focus on those children who may need more specific targeted input.

Provision is made for children with a range of SEND that can be grouped into four broad categories of need, as detailed below:

1. Communication and Interaction

Children and young people in this category have speech, language and communication needs (SLCN) which make it difficult to communicate with others. This may be because they have difficulty saying what they want to, understanding what is being said to them or they do not understand or use social rules of communication.

Children and young people with ASD, including Asperger's Syndrome and Autism, who are likely to have particular difficulties with social interaction may belong to this category.

2. Cognition and learning

Support for learning difficulties may be required when children and young people learn at a slower pace than their peers, even with appropriate differentiation.

Specific learning difficulties (SpLD), affect one or more specific aspects of learning. This encompasses a range of conditions such as dyslexia, dyscalculia and dyspraxia.

3. Social, emotional and mental health difficulties

Children and young people may experience a wide range of social and emotional difficulties which manifest themselves in many ways. These may include becoming withdrawn or isolated, as well as displaying challenging, disruptive or disturbing behaviour.

Other children and young people may have disorders such as attention deficit disorder, attention deficit hyperactive disorder or attachment disorder.

4. Sensory and/or physical needs

Some children and young people require special educational provision because they have a disability which prevents or hinders them from making use of the educational facilities generally provided. These difficulties can be age related and may fluctuate over time.

As a school, SMSB RC Primary School is committed to ensuring that all children get access to the full curriculum and we will provide suitable amendments to provision to allow this to happen.

At the bottom of this webpage: https://www.smsb.lancs.sch.uk/send/ there is a comprehensive list of subjects and the SEND adaptations that are suggested for each area. Class staff are required to consider these documents to best meet the needs of pupils with identified needs.