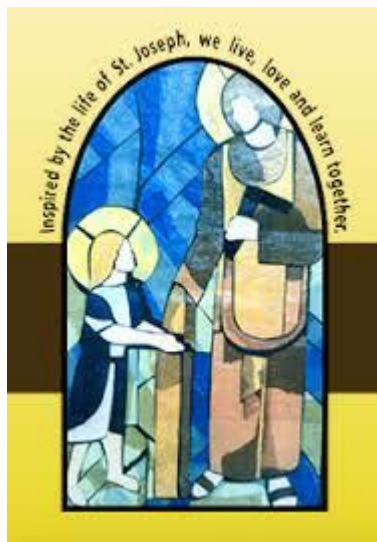


St Joseph's Catholic Primary School



**Inspired by the life of St Joseph, we live, love
and learn together**

Maths Policy 2023 - 24

Samantha Golding

“Be ready, Stay safe, Show respect”

Approved by:

Date:

Last reviewed on:

Next review due
by:

Philosophy

This policy has been developed to ensure that the teaching of Mathematics contributes to the fulfilment of the school's mission:

Inspired by the life of St Joseph, we live, love and learn together

Jesus said, 'I have come that they may have life and have it to the full.' John 10:10.

The community of St Joseph's **works hard together**. We respect and **care for each other**. We make **wise choices** and **always do our best**. We learn to **live life to the full**.

At St Joseph's we live with Christ at the forefront of our learning. This Mathematics policy strives to support our pupils in achieving skills in Mathematics that they will require as a functioning adult in society. Through working hard and trying our best we will be able to support our pupils to have opportunities within society which will allow them to live their life to the full and meet their full potential.

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 the power of Mathematics, and a sense of enjoyment and curiosity about the subject. (National Curriculum 2014)

As outlined in the above statement Mathematics plays a key role in everyday society and at St Joseph's we acknowledge that Mathematics is something that pervades everyday life, therefore it is crucial that children have opportunities to learn these vital skills in order to apply them and make better sense of the world around them. We also believe that children need to see the value of Mathematics and its relevance, therefore opportunities to teach Mathematics within a real-life context are important to help children make links between their learning and the need for these skills in their everyday life. Whilst teaching these skills it is important that the teaching and learning of Mathematics is approached in a creative way so that an enjoyment of learning is instilled and levels of engagement are improved. As a result children will build upon their existing skills, to help them develop the ability to think mathematically and critically apply the correct tools that they have been exposed to in a variety of ways. As well as skills within Mathematics we encourage children to develop skills of perseverance and resilience by acknowledging that we may not always correctly solve problems on our first attempt, highlighting the importance of being able to check and critically analyse our methods.

This policy should be read in conjunction with the following school policies:

- Calculation Policy
- Teaching and Learning Policy
- Homework Policy
- SEND Policy
- Equality and Information Objectives
- Assessment Policy
- Marking Policy

Aims and Objectives

Key Stage 1 and Key Stage 2

At St Joseph's our aim is to achieve the following as outlined in the National Curriculum:

- Become fluent in the fundamentals of Mathematics through varied and frequent practice with complexity increasing over time.
- Develop conceptual understanding and ability to recall and apply knowledge rapidly and accurately.
- Reason mathematically; follow a line of enquiry, conjecture relationships and generalisations.
- Develop an argument, justification and proof by using mathematical language.
- Problem solve by applying knowledge to a variety of routine and non-routine problems.
Breaking down problems into simpler steps and persevering in answering.

The National Curriculum outlines the study programme for children in Key Stage 1 and Key Stage 2 so that Mathematics is taught progressively, building upon skills from the prior year group. The curriculum is designed so that the majority of children will move through the programme of study at broadly the same pace. At St Joseph's we will refer to the next year group content when children have mastered and shown a 'greater depth' of understanding in the concepts taught in their specific year groups to provide extra challenge and progress the learning further.

At St Joseph's we aim to teach Mathematics using this mastery approach and interlinking the different part of mastery. Lessons are broken down into small connected steps that gradually unfold the concept, providing access for all children and leading to a generalisation of the concept and the ability to apply the concept to a range of contexts.

EYFS

At St Joseph's we aim to teach our children to become confident in their development of number sense and put emphasis on mastery of key early concepts.

In the Early Years Foundation Stage we refer to the 'Statutory Framework for the Early Years Foundation Stage' and the non-statutory guidance of 'Development Matters' which recognises that we should:

- Provide children with opportunities to develop and improve their skills in counting
- Support understanding and using numbers
- Calculate simple addition and subtraction problems
- To describe shapes, spaces, and measure

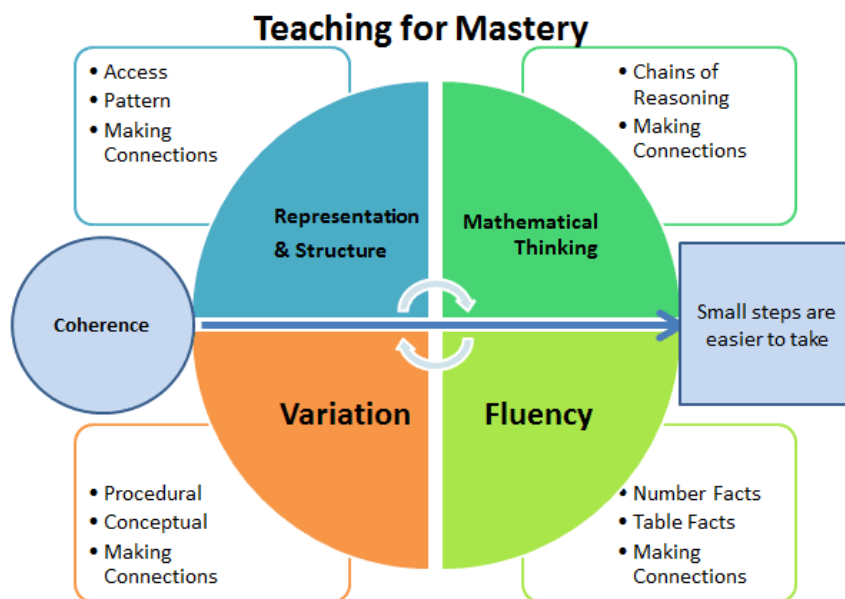
As well as this St Joseph's also aims to:

- Develop confident, competent mathematicians who are able to apply mathematical knowledge, concepts and skills
- Develop skills of resilience and perseverance with an ability to solve problems, to reason, to think logically and to work systematically and accurately
- Develop an understanding of Mathematics through a process of enquiry and investigation, providing a challenging and engaging curriculum that stretches the children's knowledge and allows them to take risks
- Encourage children to use 'maths specific' vocabulary to reason and explain
- Develop positive attitudes towards Mathematics and promote a love of learning

- Promote confident communication of Mathematics where pupils ask and answer questions, openly share work and learn from mistakes
- An ability to use and apply Mathematics across the curriculum and in real life
- Encourage a positive mindset- 'You 'can't do it **yet**' when finding something tricky

Approach

At St Joseph's we are adopting a Mastery approach which will enable pupils to acquire a deep, long-term, secure and adaptable understanding of the subject. The phrase 'teaching for mastery' describes the elements of classroom practice and school organisation that combine to give pupils the best chances of mastering maths. Achieving mastery means acquiring a solid enough understanding of the Mathematics that's been taught to enable pupils to move on to more advanced material. Along with the support of the Essex Venn Maths Hub we are working towards this journey.



(NCETM <https://www.ncetm.org.uk/resources/49450>)

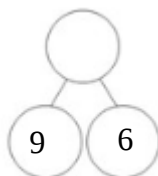
Teaching for Mastery is underpinned by four areas, these include:

- Representation and Structure
- Mathematical Thinking
- Variation
- Fluency

Representation and Structure focuses on how concepts in Mathematics are presented in different ways and forms for example when adding 2 numbers together it could be presented in many different ways:



Bar Model Representation



Part-Part Whole Model Representation

$$9 + 6 = \underline{\quad}$$

Number Sentence Representation

Nines ones add 6 ones is equal to

Place Value Representation

At St Joseph's we believe that it is important to expose children to many different representations and structures. This will enable a child to demonstrate mastery in a particular area of Mathematics if they are able to apply this within a range of different situations.

Mathematical Thinking requires children to be able to work through problems systematically rather than through `trial and error`. Children should be able to look for patterns and relationships and make connections. Children are able to demonstrate their mathematical thinking by explaining their methods and thought process when solving a mathematical problem.

Fluency is split into two areas:

- Procedural fluency
- Conceptual fluency

Procedural fluency is the ability to apply procedures accurately, efficiently, and flexibly; to transfer procedures to different problems and contexts; to build or modify procedures from other procedures; and to recognise when one strategy or procedure is more appropriate to apply than another.

Conceptual understanding is knowing the procedural steps to solving a problem and understanding why those algorithms and approaches work. This level of understanding has students reaching higher depths of knowledge because they are making connections from one skill to another.

Fluency relies on the quick and efficient recall of facts and procedures and the flexibility to move between different contexts and representations of Mathematics.

Variation is also split into two areas like fluency:

- **Procedural variation**
- **Conceptual 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.

NCETM (<https://www.ncetm.org.uk/resources/50042>)

Planning

Long Term Planning

As mentioned above, in the EYFS, the `Statutory Framework for the Early Years Foundation Stage` and the non-statutory guidance of `Development Matters` provides the long term planning in EYFS. The `National Curriculum 2014` provides the long term planning for Key Stage 1 and Key Stage 2 (Year 1 – Year 6). This ensures a consistent approach across the school and allows Mathematics to be taught progressively.

Medium Term Planning

Reception (EYFS) and Years 1-6 all follow the White Rose Maths schemes of learning. The schemes of learning are used to breakdown the larger curriculum statements (taken from the long term planning documents) into smaller progressive steps that build upon one another. As well as this the statements are broken into areas of fluency, problem solving and reasoning. Within the White Rose Maths scheme, mastery is at the centre of the scheme and it supports teachers in providing pupils with opportunities to deepen their thinking and understanding to ensure they have `mastered` that concept within their year group.

In Reception the 'Development Matters' statements are used to track progress and are then revisited regularly throughout the year. Where possible cross-curricular links will be adopted to support the children in making links through their learning, therefore making Mathematics relevant and meaningful.

Short Term Planning and lesson structure

Key Stage 1 and Key Stage 2

Using the White Rose Maths materials, teachers will plan as necessary for the needs of their classes using a format that is personalised to the teacher. Reception children will have a 40 minute lesson and then have access to the continual provision based on their current learning each day. All classes have a daily 60 minute Mathematics lesson with the opportunity within the day to complete other necessary key concerns that the class teacher has identified as a further need for learning.

Alongside White Rose, additional resources are used to subsidise and help teachers provide activities for the children:

- Classroom Secrets
- Master the Curriculum
- Third Space Learning
- NRICH
- NCETM
- Twinkl
- Target my Maths

At St Joseph's we also acknowledge our own teachers' creativity, where resources and activities may be created solely by the teacher.

In all 60 minute lessons, learning objectives are displayed and discussed. Children will work in pencil and present their work neatly, with high expectations of the standard of work. The emphasis in lessons is to make teaching interactive and lively, to engage all children, encouraging them to talk about Mathematics. Difficult points and potential misconceptions are identified in advance and strategies to address them planned. Key questions are planned, to challenge thinking and develop learning for all pupils. Within the session children will be exposed to problems to solve, resulting in mathematical discussions about key ideas. Throughout, there should be a balance of teacher talk and pupil led discussion. Children will have the opportunity to use concrete resources to support their understanding of mathematical concepts as well as using pictorial methods.

EYFS

In Class 1 White Rose Maths and the 'Development Matters' document are used to develop and plan lessons around a selected objective. During daily sessions the whole class is taught together, previous learning will be revisited and new concepts introduced. Two focus groups will take place which are adult led Mathematics sessions for EYFS and the year 1 students, children will learn through a mixture of adult led activities and child initiated activities both inside and outside of the classroom. Where possible links are made to other areas within the curriculum to make learning relevant and meaningful. After these sessions children have access to continuous provision activities with a mathematics focus.

Mathematics is also taught beyond allocated Mathematics sessions. Independent Mathematics activities are provided to consolidate the adult led session so children can demonstrate their learning using different resources. The idea is that a 'floating adult' is able to make observations and move the leaning on through questioning, address misconceptions etc.

Pupils record of work

All pupils have access to their own Mathematics book where they will record their learning. Children are taught a variety of methods for recording their work and are encouraged and helped to use the most appropriate and convenient method. Children are encouraged to use mental strategies and their own jottings before resorting to more formal written methods. Children's own jottings to support their work is encouraged throughout all year groups.

Marking

At St Joseph's we believe marking and feedback is essential to ensuring that children continue to make further progress. Work is marked against the learning objective, in line with the schools marking policy (see St Joseph's Marking and Feedback Policy for further information).

Within each Mathematics sessions children are provided with both oral and written feedback. Throughout Mathematics sessions children are provided with live feedback to address misconceptions, support the children's learning and extend learning further.

Next steps are provided to check understanding, children are encouraged to look back and check their work, as well as providing an opportunity for children to read and respond to marking. Responses to marking are made as close to the work as possible, ideally at the start of the next lesson. Some pieces of work in Mathematics can be marked by children themselves, exercises involving routine practice with support and guidance from the teacher – particularly in years 5 & 6.

Assessment

In order to inform planning and to assess children's progress, objective coverage and progress towards these objectives is tracked in the children's learning journals or Maths books class 1's reception children. This will be updated termly and identify whether children are beginning, developing, embedding or mastering the age related expectations.

Formative Assessment

Children will be provided with feedback either verbally or through written marking. When marking work teachers should adhere to the school's Marking Policy. Within Reception observations and discussions with the children support teachers judgements. Throughout lessons AfL (Assessment for Learning) and live feedback play a key role in identifying children who require further support and those that require further extension.

Before beginning a new unit of work, children will complete a pre-teaching activity, with a few questions based on the next unit of work/concept taught in Mathematics. This allows teachers to assess their current knowledge and provide an insight on where to take the learning next. As well as this it also helps teachers to consider grouping within this unit. At St Joseph's we acknowledge that grouping should be fluid and not based on end of year judgements. After the completion of each unit of work, the children will complete a post-teaching assessment which will show the progress the children have made from the beginning of the unit to the end.

Summative Assessment

Termly assessments are carried out across the school using the assessment materials for each year group provided by White Rose Maths, in line with the schemes of learning. These materials used alongside judgements made from class work support teachers in making assessment judgements for each child which in line with the Assessment Policy, they enter onto Pupil Asset. As well as this teachers will use this information to identify gaps in knowledge that remain, in order to provide further intervention to fill these gaps.

Pupil Progress meetings are timetabled each term for all classes. Progress of pupils is discussed and appropriate intervention considered and put in place where appropriate.

Year 2 and Year 6 complete the national tests (SATs) in May which support teachers in making their summative judgements in the summer term. As of 2020, Year 4 will also complete the 'Multiplication Tables Check' to ensure that our pupils are able to recall their times tables facts up to 12x12 by the end of Year 4.

Resources and Learning Environments

Resources

Each class has a stock of essential Mathematics resources that are age appropriate including Numicon, dienes, place value counters etc. Additional mathematical equipment and resources are stored centrally within school. Additional teacher reference books and research documents are stored outside the staff room for use during teachers' PPA.

Learning Environment

At St Joseph's we like to create a stimulating and engaging environment for the children that we teach. In each classroom there is a 'Working Wall' display board dedicated to Mathematics. This board should be clearly labelled. This board should be used as part of a working wall to show the current learning within the class showing strategies and methods that could be used, therefore creating a point of reference for the children. Vocabulary applicable to the current topic within Mathematics should be evident and referred to during Mathematics lessons. Each classroom has a number line and Mathematical symbols. In Key Stage 2 all classrooms will display a multiplication square (either in books or on tables), as a point of reference to support children when counting. In Class 1 a number line should be used with pictorial representations of each numeral to understand how these different numbers can be represented.

Home Learning

In Class 1 and 2, Mathematics tasks will be set focusing on practising key skills that have been identified during observations of the children's learning. In Key Stage 1 Mathematics tasks will be set throughout the period of a term, as well as the expectation to learn their number bonds and begin to learn their times tables. In Key Stage 2 Mathematics tasks are set weekly including practising times tables and related facts.

At St Joseph's our pupils have access to different tools that they can use at home to support their learning of key facts. Children have access to 'Times Table Rock Stars' which focus on improving children's recall of multiplication and related division facts. Teachers are able to personalise the times tables that the children cover as well as identify any potential gaps in knowledge by referring to class and individuals. Every week home learning on 'Times Table Rock Stars' is celebrated with certificates being awarded to children with the fastest speed and those that have improved their baseline speed.

At St Joseph's we encourage parents/carers to be involved by:

- Inviting parents/carers to a 'Meet the Teacher' meeting to discuss year group expectation (targets) and a yearly report outlining their child's achievements.
- Setting homework that is related to Mathematics

- Inviting parents/carers in weekly for a `Celebration assembly` to share their children learning
- Inviting parents/carers into school for information shares e.g. SATs, Multiplication Tables Check.
- Inviting parents/carers into school twice/three times yearly to discuss the progress of their child
- Holding workshops for parents/carers
- Invite parents/carers to have the opportunity to upload/see and comment on a Mathematics activities using Seesaw.

Monitoring and Reviewing

The monitoring of Mathematics teaching and pupil progress is the shared responsibility of teachers, subject leader and the senior leadership team. The work of the subject leader includes supporting colleagues in the teaching of maths, keeping up to date with current developments as well as providing a strategic lead and direction for the subject. The school's governing body receive regular updates to inform them of the vision for continually driving forward teaching for mastery.

Inclusion

In line with the School's Inclusion Policy each child will have an equal entitlement to all aspects of the Mathematics curriculum and to experience the full range of Mathematical activities. Therefore, in delivering Maths, care will be taken to ensure that a variety of learning styles are accessed and teaching methods adopted. As well as this it is important that children's learning is not `capped`. At St Joseph's we acknowledge that children can attain differently across different areas of Mathematics and therefore grouping should remain fluid, for example a child who may have poor number skills could have a sound knowledge of shapes and their properties.

Within the daily Mathematics lesson teachers have a responsibility to not only provide differentiated activities to support children with SEND, but also activities that provide sufficient challenge for all children including those who are high achievers. It is the teachers' responsibility to ensure that all children are challenged at a level appropriate to their ability.

The aim is to ensure that every pupil makes progress and gains positively from lessons and for teachers to plan inclusive lessons. Lessons involving lots of visual, aural and kinaesthetic elements will benefit all children including those for whom English is an additional language (EAL). Differentiated questions and planned support from Learning Support Assistants and other adults are used in lessons to help children.

Children with IEP's (Individual Education Plans) incorporate suitable objectives from the National Curriculum for Mathematics or `Development Matters` and teachers keep these in mind when planning work. These targets may be worked upon within the lesson as well as on a 1:1 basis outside the Mathematics lesson.

Intervention groups will take place both within the Mathematics lesson and outside or during the afternoon; these sessions may be delivered by the teacher or Learning Support Assistant and may involve individual or small group work, accessing both ends of the learning spectrum. Within Class 1 intervention groups take place where children have misconceptions or gaps in knowledge. An intervention group will be built around the needs of the pupils. Similarly across all year groups where children may require further support and have not achieved their learning objective, interventions will be given to support children in closing these gaps.

Role of the Mathematics Lead

- **Developing a common purpose and a shared culture**

Promoting and creating a shared vision for why Mathematics is important, what we want for our pupils and what we all want to achieve at St Joseph's through the Mathematics curriculum in order to help raise standards in Mathematics.

- **Planning for improvement**

Making an honest appraisal of what we are good at, what needs to be worked on and planning actions and developments accordingly, including monitoring the teaching and learning throughout the school.

- **Developing a team work approach**

Developing and sustaining a culture of sharing teaching ideas, encouraging professional development and working together to develop practice

- **Having efficient and well organised systems**

Setting up and maintaining good, efficient systems for the management and organisation of resources and data together with the documentation of agreed policy and practice.

- **Samantha Golding Mathematics Lead**