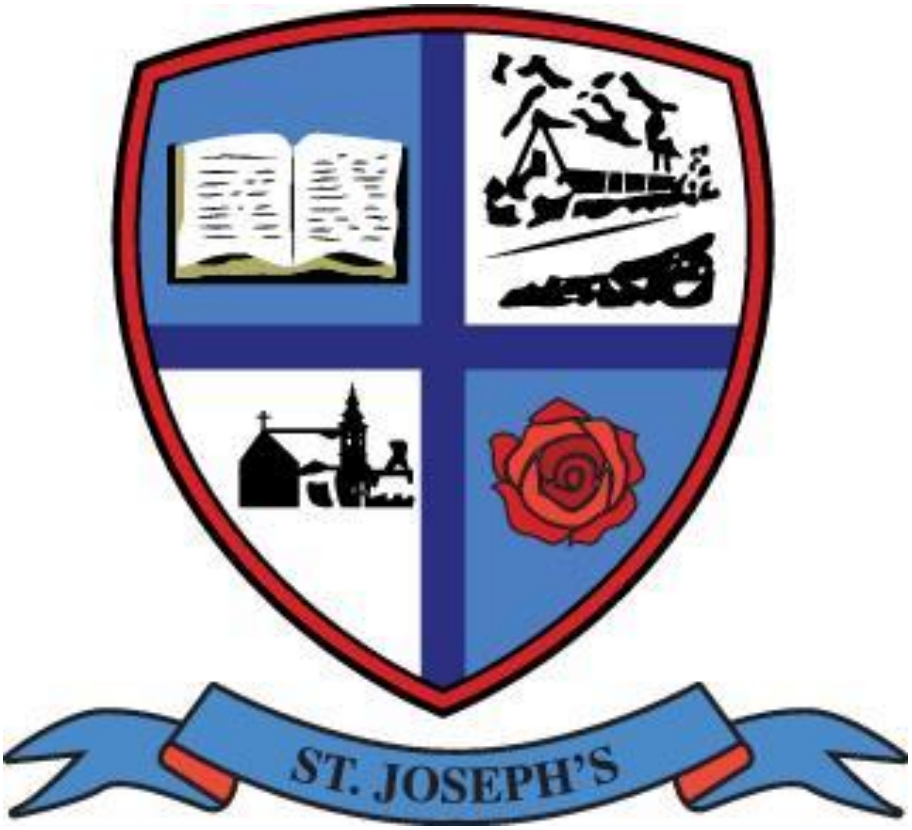
ST JOSEPH'S CATHOLIC PRIMARY SCHOOL



MATHEMATICS POLICY

Reviewed: February 2025

To be reviewed: February 2027

MATHEMATICS AT ST JOSEPH'S

This Mathematics Policy aims to outline our comprehensive approach to teaching Maths at St Joseph's, in accordance with the 2014 National Curriculum in England, and to uphold the expectations set by Ofsted. Our commitment is to ensure that all learners develop a strong understanding of mathematical concepts, foster a positive attitude towards learning, and achieve their full potential in mathematics.

In order to support our approach to teaching for Mastery of Mathematics, we use the White Rose Maths materials to support our planning and teaching.
These materials:

- Have number at their heart. A large proportion of time is spent reinforcing number to build competency.
- Ensure planning supports the ideal of depth of learning before breadth of learning.
- Provide plenty of opportunities to build reasoning and problem-solving elements into the curriculum.

At St Joseph's, we believe it is important that children develop a deep understanding of the mathematical concepts they are learning. To support this, we take on the concrete, pictorial, abstract (CPA) approach. This is a highly effective approach to teaching that develops a deep and sustainable understanding of maths.

This moves children from concrete resources, pictorial representation and finally to the abstract. New learning will need manipulatives to support understanding. Once this is achieved, pictorial/visual images will be used. Ultimately, children need to be working at an abstract level.

Concrete

Concrete is the "doing" stage, using concrete objects to model problems. Instead of the traditional method of maths teaching, where a teacher demonstrates how to solve a problem, the CPA approach brings concepts to life by allowing children to experience and handle physical objects themselves. Every new abstract concept is learned first with a "concrete" or physical experience.
For example, if a problem is about adding up four baskets of fruit, the children might first handle actual fruit before progressing to handling counters or cubes which are used to represent the fruit.

Pictorial

Pictorial is the "seeing" stage, using representations of the objects to model problems. This stage encourages children to make a mental connection between the physical object and

abstract levels of understanding by drawing or looking at pictures, circles, diagrams or models which represent the objects in the problem.
Building or drawing a model makes it easier for children to grasp concepts they traditionally find more difficult, such as fractions, as it helps them visualise the problem and make it more accessible.

Abstract
Abstract is the "symbolic" stage, where children are able to use abstract symbols.
Only once a child has demonstrated that they have a solid understanding of the "concrete" and "pictorial" representations of the problem, can the teacher introduce the more "abstract" concept, such as mathematical symbols. Children are introduced to the concept at a symbolic level, using only numbers, notation, and mathematical symbols, for example +, –, x, / to indicate addition, multiplication, or division.

Although above, CPA is shown as three distinct stages, our teachers will go back and forth between each representation to reinforce concepts.

VISION STATEMENT
Our vision is to provide an engaging, challenging, and supportive mathematics curriculum that promotes curiosity, resilience, and a deep understanding of mathematical principles. We aim to equip our pupils with the skills, knowledge, and confidence necessary to apply mathematics in everyday life and future academic endeavours. At St Joseph's Catholic Primary School, we aim to create mathematical thinkers not calculators. A mathematical thinker is:

- a lover of learning;
- fluent;
- able to independently and confidently use a variety of strategies, in a number of contexts;
- willing to take risks to seek out solutions and persevere when faced with challenges;
- able to explain their thinking in different ways.

INTENT
We believe that all children should have:

- a deep understanding of maths and number;
- a positive and resilient attitude towards mathematics and an awareness of the fascination of mathematics;
- competence and confidence in mathematical knowledge, concepts and skills;
- an ability to solve problems, to reason, to think logically and to work systematically and accurately;
- a range of learning strategies: working both collaboratively and independently;
- fluency in mathematics where children can express ideas confidently and talk about the subject using mathematical language;
- an understanding of the importance of mathematics in everyday life;
- independent learners who take responsibility for their own learning.
- access to enrichment opportunities, where especially our particularly able year 6 children, participate in challenging and engaging math workshops provided by

external mathematics experts through ‘Shares’.

Our maths curriculum aims to ensure that all children:

- become fluent in the fundamentals of mathematics through placing number at the heart of our curriculum with daily practice to ensure fluency of number facts;
- reason mathematically by following a line of enquiry through ensuring discussion plays a vital role in all lessons. Children are actively encouraged to discuss with peers and teachers, how? Why? using mathematical language;
- can solve problems by ensuring problem solving is embedded in every lesson and variation of questions are used to enable children to apply their knowledge to different situations;
- develop rich connections across mathematical ideas to develop fluency and are encouraged through variation of questions which can be seen in every lesson and evidenced in the maths books;
- experience challenge which is built into every lesson for all pupils and those who grasp concepts rapidly through sophisticated problems and an opportunity for children to demonstrate their understanding creating their own problems;
- receive same day 'keep up' intervention if not sufficiently fluent with earlier material to consolidate their understanding;
- access, when necessary, ‘Pre teach ‘materials to prepare them for next steps in their learning.

IMPLEMENTATION

Our mastery approach to the curriculum is designed to develop children's knowledge and understanding of mathematical concepts from the Early Years through to the end of Y6 and a love of mathematics.

- In school, we follow the national curriculum and use White Rose Schemes of Work as a guide to support teachers with their planning and assessment **(see appendix 1: Curriculum overviews).** It is pivotal that reasoning, fluency and problem-solving are embedded in the teaching of mathematics and not taught as separate entities. Pupils will spend enough time to fully explore a concept before moving on to a different topic. Each unit is designed to provide minimal step progression through the material so that all pupils can move forward together at broadly the same pace (**see appendix 2: National curriculum and ‘ready to Progress’ mapping with WRM**) Provision is provided for struggling learners and advanced learners, through careful scaffolding, skilful questioning and appropriate rapid intervention, so that concepts are embedded and deepened without the need to accelerate.
- The calculation policy is used within school to ensure a consistent approach to teaching the four operations over time **(see appendix 3: Calculations Policy).**
- The times tables policy is used within school to ensure a consistent approach to teaching times tables **(see appendix 4: Times Table Policy)**.
- 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).
- Our emphasis is on number skills first, carefully ordered, throughout our primary curriculum.

- To ensure there are planned opportunities for children to revisit their learning, teachers allocate time each day for children to re-cap and embed learning using Flashback 4's. This, along with an emphasis on questioning and pupil discussion allows for a greater depth of understanding and supports our commitment of a mastery approach.
- To develop fluency of number facts EYFS and KS1 both have four fifteen minute 'Mastering Number' lessons a week on top of their maths sessions to ensure that all children are able to use strategies to calculate number facts without the need to 'count on'. In addition, Year 3 and 4 have daily sessions devoted to times tables practise.

IMPACT

Children demonstrate a deep understanding of maths. This includes the recollection of the times table.

- Children display a positive and resilient attitude towards mathematics and an awareness of the fascination of mathematics.
- Children show confidence in believing that they will achieve
- Each child achieves objectives (expected standard) for year group.
- the flexibility and fluidity to move between different contexts and representations of maths.
- The chance to develop the ability to recognise relationships and make connections in maths lessons.
- Mathematical concepts or skills are mastered when a child can show it in multiple ways, using the mathematical language to explain their ideas, and can independently apply the concept to new problems in unfamiliar situations.
- Children are able to discuss their reasoning, focusing on how they know using what they know to support their learning.

TIMES TABLES

A high priority is placed on times tables throughout school and we make use of a number of resources to support this, including the Abacus North West Maths Hub times table booklets and 'Times Table Rockstars', which is a carefully sequenced programme of daily times tables practice to help boost our pupils' recall speed.

It is vital that children are fluent with multiplication facts to help them solve mathematical problems accurately and confidently. We have reviewed and updated our school times tables award system to further motivate and support our children to learn these number facts with rapid mental recall. (**See appendix 4).**

ASSESSMENT

Assessment happens on a variety of levels and is used to inform teachers, SLT and Governors on pupil attainment and progress.

Formative Assessment

- This happens in every lesson through teacher observations and questioning. Misconceptions and gaps are then addressed as quickly as possible (in the lesson/during the afternoon) so that children are prepared for the next lesson and

any new learning (circulate, assess and amend). This daily assessment is used to inform further teacher planning.

Summative Assessment

- In year 1-6, children are assessed at the end of each unit and term. When each White Rose Maths unit is completed, children undertake an end of block assessment which informs the teacher of each child's understanding of that topic; this will then inform any future interventions which are needed to ensure the children have understood a concept. Each term, every child undertakes an NFER assessment which provides standardised scores and helps the class teacher to identify gaps in understanding. Teachers will use these and daily formative assessments to make a judgement of whether the child is on track to be expected standard by the end of the year. The subject lead along with SLT, will have an overview of this whole school data to track the progress and attainment of cohorts which allows for analysis of strengths and areas of development across classes.
- We also use the NCETM's Teaching for Mastery (questions, tasks and activities to support assessment) materials, for pupils in year 1 to year 6, aim to assess how well the pupils understand concepts. These questions, tasks and activities can provide pupils with the opportunity to develop and demonstrate a depth of understanding and proficiency which will ensure that learning is likely to be both sustained over time and built upon in the future.

Reporting

- We provide regular feedback to parents through parents' evenings and termly written reports highlighting individual attainment and effort.

MARKING

We use the guidance documents provided by the NCETM to make effective marking and feedback. Effective marking and feedback enables pupils to develop and consolidate their understanding of maths.

It is important for teachers to distinguish between a pupil's simple slip and an error that reflects a lack of understanding:

- For slips, it is often enough to simply indicate where each slip occurs, particularly when our approach is to encourage pupils to correct them;
- If errors demonstrate lack of understanding, we may decide to take alternative courses of action. For instance, with a small number of pupils, we may arrange same-day intervention while for a large number of pupils, the errors will be addressed in the next lesson.
- Evidence shows (Black and Wiliam 1998) that pupils benefit from marking their own work. Part of this responsibility is to identify for themselves the facts, strategies and concepts they know well and those which they find harder and need to continue to work on.
- The next lesson is designed to take account of the next steps needed.

CPD

Through the Abacus North West Hub, staff are provided with regular training sessions and workshops for teachers to share best practices, stay updated with pedagogy, and collaboratively develop resources.

As part of Abacus North West Maths Hub, St Joseph's has accessed a number of professional development workgroups including:

- Teaching Assistant Subject Knowledge
- Mastery Readiness
- Developing Primary TfM
- Developing TfM in EYFS

By participating in these workgroups, teaching and support staff have the opportunity to hone their skills to improve the quality of teaching and learning with the aim of improving pupil outcomes for children. Additionally, this ensures that we remain outward looking and are able to effectively monitor the impact of our mathematics curriculum and demonstrate sustained self-evaluation and improvement.

PARENTAL ENGAGEMENT

We share resources that enable parents to support their children's mathematical learning at home through LBQ, TT Rockstars, Mathletics and 1 Minute Maths provided by WRM. We communicate effectively with parents about their child's progress and provide tips for mathematics activities that they can enjoy together.

CONTINUOUS IMPROVEMENT

We conduct regular reviews of teaching practices and curriculum implementation, including seeking feedback from staff, pupils, and parents to identify areas for improvement. We evaluate pupil performance data to inform strategic decisions about curriculum delivery and resource allocation.