St. Joseph's Catholic Primary School

MATHS INTENT, IMPLEMENTATION & IMPACT STATEMENTS

Intent – what are we trying to achieve?

At St Joseph's, we want our pupils to experience deep, sustained understanding of mathematical ideas and concepts so that they become confident mathematicians throughout their learning, equipping them with life skills: maths can be found in every aspect of life.

We want our children to become fluent in the fundamentals of mathematics and be able to apply this different learning in different contexts by providing a coherently planned and sequential curriculum. Additionally, we aspire for all children to develop an enthusiasm for the subject and become curious and active learners.

We aim to develop children's mathematical vocabulary then they can speak fluently and with assurance when problem solving, in turn, creating critical thinkers who seize opportunities to solve problems and work creatively. We use the phrase 'teaching for mastery' to describe the rationale that underpins the pedagogy and subject organisation that combine to give the children the best chance of mastering mathematics.

Our curriculum enables children to:

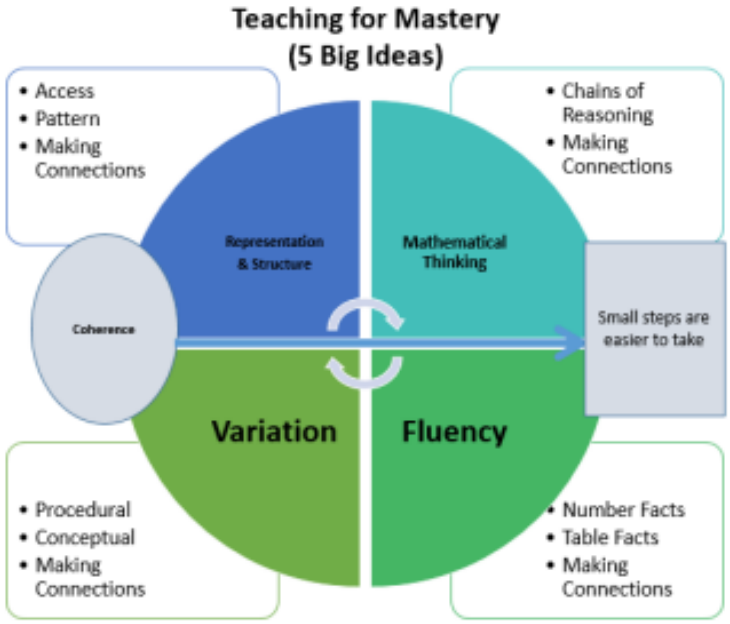
- develop an understanding of the number system including place value and number sequences
- develop rapid recall of addition facts and related subtraction facts
- develop rapid recall of multiplication tables and related division facts
- be able to make links between different areas of mathematics and identify patterns
- be able to make links between mathematics in the classroom and in the wider world
- select appropriate methods to solve problems (mental methods, jottings or formal
- written methods)
- use a range strategies to mentally solve problems
- gain the skills to carry out written calculations using formal methods whilst developing a secure understanding of how these methods work
- gain a strong understanding of mathematical concepts and use accurate vocabulary to communicate their knowledge
- be able to name 2D and 3D shape and describe their properties
- be able to use and apply units of measure (for length, mass and volume) and know the relationships between different them
- have regular opportunities to apply their mathematical skills to solve more complex problems, including those that involve logic and reasoning

Implementation:

At St Joseph's, we implement an inclusive and comprehensive mastery maths curriculum that meets the needs of the National Curriculum. Our maths lead is an accredited Primary Mastery Specialist with the NCETM and we have been working towards our mastery curriculum since 2015, developing our knowledge and skills in mastery teaching, working

with schools locally, nationally and internationally, sharing best, relevant and effective practice.

Mathematics is taught daily across school. Our curriculum is delivered through highly effective 'quality first teaching'. Teaching and learning sequences are planned in 'small steps' with much thought and rigor behind each lesson. When planning our teaching and learning steps we focus on The 5 Big Ideas for teaching for mastery.



Concrete, Pictorial, Abstract

Children need to reason by and with themselves to establish and recognise mathematical patterns and connections to underpin real understanding of mathematical structure. We plan to create appropriate paths through the mathematics for practising the thinking process with creativity, focusing on procedural and conceptual variation.

We follow a concrete, pictorial, abstract approach to teaching calculations to ensure that children understand the mathematical structure behind calculations, allowing them to make their own connections and thereby increasing fluency. It allows them to show the same maths represented in different ways, allowing children to draw out connections.

Children's conceptual understanding and fluency is strengthened if they experience concrete, visual and abstract representations of a concept during a lesson. Moving between the concrete and the abstract helps children to connect abstract symbols with familiar contexts, thus providing the opportunity to make sense of, and develop fluency in the use of, abstract symbols. This is supported by a strong and consistent focus on questioning to develop reasoning.

Differentiation is achieved through individual challenge and support to access the same lesson. Lessons are taught in blocks to enable achievement over time, revisiting content throughout.

Identifying difficult points

We aim to anticipate and identify difficult points through teaching and learning. Difficult points need to be identified and anticipated when lessons are being designed and these need to be an explicit part of the teaching, rather than the teacher just responding to children's difficulties if they happen to arise in the lesson. The teacher should be actively seeking to uncover possible difficulties because if one child has a difficulty it is likely that others will have a similar difficulty.

Developing children's fluency with basic number facts

Fluent computational skills are dependent on accurate and rapid recall of basic number bonds to 20 and times-tables facts. We aim to spend a short time every day on these basic facts to improve fluency and as an important step to developing conceptual understanding through identifying patterns and relationships Children develop a strong sense of number relationships, an important prerequisite for procedural fluency.

We explore the 'don't count, calculate' idea right to help children at an early stage to start calculating, rather than relying on 'counting on' as a way of calculating. For example, with a sum such as: 4 + 7 = Rather than starting at 4 and counting on 7, children could use their knowledge and bridge to 10 to deduce that because 4 + 6 = 10, so 4 + 7 must equal 11.

Developing children's fluency in mental calculation

Efficiency in calculation requires having a variety of mental strategies. We aim to explore these with children to expose mathematical structure, equipping them with strategies to calculate accurately and quickly. We place a particular emphasis on 'magic 10' and partitioning numbers to bridge through 10 i.e. 9 + 6 = 9 + 1 + 5 = 10 + 5.

Develop fluency in the use of formal written methods

At St Joseph's, we teach column methods for calculations to provide the opportunity to develop both procedural and conceptual fluency. It's important that the children understand the structure of the maths presented in the algorithms, in particular, place value. Informal methods of recording calculations are an important stage to help children develop fluency with formal methods of recording – they are stepping-stones to formal written methods.

Impact:

Our comprehensively planned Mathematics curriculum ensures children develop the skills, knowledge and expertise for all to succeed in mathematics. Furthermore, it nurtures a love of mathematics. Children acquire a deep, long-term, secure and adaptable understanding of maths and its place in the world.

Through the breadth, depth, variation and small steps that our maths curriculum offers, children are equipped to become life-long mathematicians and in turn, divergent and creative thinkers who show enthusiasm for problem solving.

The impact our mathematics curriculum has on learners in our school is transparent: progress, sustained and coherent learning and multi-functional life skills. We can measure attainment using national assessments, along with formative and summative assessments

used within the classroom setting, coupled with expert knowledge from class teachers. Teaching staff are adept at planning well-structured and effective lessons that draw out learning potential and feed into interventions, maintaining high standards with achievement well above the national average.

End of block and termly assessments are a valuable tool in measuring the impact of our curriculum, as it detailed question level analysis to inform teaching and learning.