



English Martyrs'

CATHOLIC VOLUNTARY ACADEMY

English Martyrs' Catholic Voluntary Academy Maths Policy



"At English Martyrs' Catholic Voluntary Academy, we offer a broad-based curriculum which promotes the spiritual, moral, cultural and physical development of our pupils and prepares them for the opportunities, responsibilities and experiences of adult life."

Introduction to mathematics at English Martyrs'

A high-quality mathematics education provides a foundation for understanding the world, the ability to reason mathematically, and a sense of enjoyment and curiosity about the subject. This revised policy takes into account the new National Curriculum (2014) whilst working alongside our whole school curriculum aims seen below.

Purpose

The purpose of this policy is to describe our practice in Mathematics and the principles upon which this is based.

Our statement of intent in maths

We aim to develop lively, enquiring minds encouraging each individual pupil to become self-motivated, confident and capable in order develop a fluency and depth of understanding to solve problems. Every child has an individualised learning journey adapted to their needs. The delivery of mathematics at English Martyrs 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 have conceptual understanding and are able to recall and apply their knowledge rapidly and accurately to problems. This is rehearsed through our basic skills sessions and consolidated with applied sessions.



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- reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language. Every week a range of activities are planned for all abilities to experience these different styles of reasoning.

- can solve problems by applying their mathematics to a variety of problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Fluency requires the quick and accurate mental recall of facts that pupils have learned up to that point; precision and confidence in using mathematical concepts, properties and symbols, and the competent and flexible selection and application of methods in different contexts.

Solving problems requires analysing information presented in different forms, recognising what is given in the information and what additional information is needed; identifying and conjecturing patterns, relationships, and generalisations; testing, inducing, deducing, and proving; and communicating ideas effectively.

Mathematical reasoning requires breaking down problems into a series of simpler problems or steps; making decisions about gathering, processing and calculating to acquire new information; and showing perseverance in finding solutions.

Pupils are taught to practise and then apply their mathematics to a range of problems. They are encouraged to make connections across mathematical procedures and concepts to ensure fluency, mathematical reasoning and competence in solving problems. They are also able to apply their mathematical knowledge across the curriculum. This is developed through specific planning for maths in the wider curriculum, planning for opportunities to rehearse and relate mathematical skills and understanding to other subjects delivered through the school curriculum.

Our implementation **Teaching and learning at English Martyrs'**

The school understands that children learn in different ways, and so uses a variety of teaching styles in mathematics, adapting to the needs of the individual child as necessary and appropriate. We develop their ability to independently select and use appropriate concrete apparatus to support their conceptual understanding and build procedural fluency. They have the opportunity to independently access and use a wide range of resources, such as number lines, Dienes/ Base 10 apparatus, place value counters, Numicon, multi-link, place value cards and other small apparatus to support their work. We develop the children's ability to represent problems using visualisation skills, jottings and pictorial representations such as Empty Number Lines and their own ideas. Wherever possible, we provide meaningful contexts and encourage the children to apply their learning to everyday situations and the other subject areas covered over the course of the termly topic.



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At all times the policy aims are the drivers behind the planning and delivery of lessons. The expectation is that the majority of pupils will move through the curriculum skills at broadly the same pace. However, decisions about when to progress will always be based on the security of individual pupils' understanding and their readiness to progress to the next stage, through use of the school jigsaw planning system. Pupils who grasp concepts rapidly will be challenged through being offered rich and sophisticated problems rather than any acceleration through new content. These children will be identified early through the use of a half termly pre learn. They will be encouraged to move onto deepening their understanding of the skills being learnt. Those who are not sufficiently fluent with earlier material will consolidate their understanding, including through additional practice, before moving on. We achieve this through a range of strategies, such as the use of a weekly pre-teach to fill any gaps, booster sessions outside of lesson time and 1-to-1 support. There is also the use of peer-support pairs and guided or targeted input from the teacher and teaching assistants.

Planning is based upon the National Curriculum (2014). Class teachers are responsible for the relevant provision of their own classes and individually develop weekly plans which give details of learning objectives and appropriate differentiated activities. Although planned in advance they are adjusted on a daily basis to better suit the arising needs of a class and individual pupils.

Each year group takes part in a 25 minutes basic skills session at the start of every day. This session occurs 5 times a week and is key to the build-up of fluency with number and the children's ability to secure their understanding of mathematics. There is also a strong emphasis on times tables with 10 minutes a day put aside for times tables practice, as well as maths buddies from the older year groups supporting children lower down the school with their learning of the tables. Times tables Rockstars has been launched with enthusiasm and is now embedded and used to supplement and encourage engagement with times tables on a daily basis. Active maths is being introduced across the school to develop and support the children's engagement with maths as well as increasing their levels of exercise through active learning.

The school's calculation policy (created in 2014/15) has been created to provide continuity throughout the school with all four operations, which in turn will facilitate measured progress for children in school.

Teachers will also plan for mathematics outside of the maths lesson within the topic based curriculum to allow children to develop their understanding of maths in a wider range of contexts. This will feature on the Medium Term Plans for each term, planning for wider opportunities to explore maths in real life contexts and is evidenced in the topic work completed throughout each term.

Foundation Stage

The programme of study for the Foundation stage is set out in the EYFS Framework for which we were early adopters in 2019-20. This is aimed at embedding a deep and secure understanding of number and how they are composed. Mathematics involves providing children with opportunities to develop and



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improve their skills in counting, understanding and using numbers, calculating simple addition and subtraction problems; and to describe and compare shape, spaces and measures. This is delivered through a balance of adult led and child initiated activities following a basic skills session delivered in an active and engaging way.

Key Stage 1 and 2

The National Curriculum (2014) has set out year by year expectations for Key Stages 1 and which have been broken down into termly progression sheets. These are organised in a distinct sequence and structured into separate domains. Pupils should make connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Key Stage 1: The principal focus of mathematics teaching in Key Stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources (e.g. concrete objects and measuring tools). At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money. By the end of Year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency. Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at Key Stage 1.

Lower Key Stage 2: The principal focus of mathematics teaching in lower Key Stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers. At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number. By the end of Year 4, pupils should have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work. Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

Upper Key Stage 2: The principal focus of mathematics teaching in upper Key Stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This





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should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio. At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with complex geometric properties and that they learn the vocabulary they need to describe them. By the end of Year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages. Pupils should read, spell and pronounce mathematical vocabulary correctly. Links with other curriculum areas Throughout the whole curriculum, opportunities to extend and promote Mathematics should be sought. Nevertheless the prime focus should be on ensuring mathematical progress delivered discretely or otherwise.

Maths Learning Environment

The school aims to provide a mathematically stimulating environment:

- through displays that promote mathematical thinking and discussion
- through displays of pupils' work that celebrate achievement
- by providing a good range of resources for teacher and pupil use.

In every classroom, resources such as number lines, hundred square, place value charts and multiplication squares are displayed as appropriate and used as resources for whole class or individual work, for children to become confident in their use and understanding of the number system.

Spiritual, moral, social and cultural development

The teaching of mathematics supports the social development of our children through the way we expect them to work with each other in lessons. We group children so that they work together, provide opportunities and structure for collaborative learning, and we give them the chance to discuss their ideas and results. It is important that in a mathematical learning environment all learners feel confident to have a go.

Home/school links

Guidance and information about Maths is provided on the school website with links to Maths websites and other useful documents and resources. Homework will be sent home when appropriate in order to reinforce concepts and skills being learned in school. We have also embedded the use of 'Times Tables Rockstars' to encourage children to learn their times tables with enthusiasm and to introduce an element of excitement and competition throughout the year.



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At English Martyrs we believe that every child, irrespective of gender, race or ability should have access to a broad and challenging maths curriculum. The monitoring of our National Test results for performance by groups of children takes place each year. We endeavour to adapt our teaching if the findings point to any changes that should take place. Additional information about equal opportunities and the curriculum can be found in the Equality Policy.

Assessment/ Marking

All teachers will give pupils regular, positive feedback. When marking work, encouragement and support is given to each child in addition to clear guidance on how to improve using next step marking. Where appropriate, next step stamps are used to provide immediate feedback throughout the lesson to allow for progress to be made immediately. A next step will then be given at the end of the lesson for any learners who are required to develop their understanding further. A letter 'D' written by work signifies that a discussion has taken place to move the child on in their learning.

In Reception and Year 1 the children will do most of their number work in practical activities. Some practice is needed in number formation and this is carefully taught. Recording is more informal. Work should be marked wherever possible with the child present as verbal feedback is very important. Correct answers should be highlighted green. Incorrect answers should be highlighted orange and the teacher may draw a _____ for the correction. If a number is formed incorrectly the teacher may write it correctly. Children should be encouraged to use a number line to check number formation.

By Year 2 most children are able to form their numbers correctly and support is given to those still needing help. Recording is becoming more formal but still with an emphasis on practical work.

In Key Stage 2 children should: show the stages of their thinking, particularly with problem exercises and complete corrections when required. The teacher's judgement should be used regarding the siting of corrections, i.e. beside the wrong answer or on a fresh page. Peer marking may be used as well as self-assessing for basic skills where the answer is a definite. Not all wrong calculations need to be corrected, depending on the nature of the error, i.e. one digit wrong in a sequence of otherwise correct answers. In this case the teacher may simply circle the incorrect digit in the answer. Our positive marking policy includes giving verbal praise, house points and stamps/stickers.

Assessment for learning

Assessment for learning is embedded into each lesson and teachers use assessment for learning techniques and strategies on a daily basis in order to identify pupils' strengths and difficulties, inform the next steps for each child's learning and improve the learning outcomes for each child. Use of mini-whiteboards during basic skills sessions supports this regular AfL.

Short-term planning is constantly reviewed and modified on the basis of these assessments.



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Summative assessment: Termly summative assessments are made of each child's achievement. This has been developed over the past 2 years towards a new system of assessing without levels in line with the new curriculum, as is the national requirement.

The evidence base for these assessments comes from day-to-day class work and each individual's learning journey through the weekly jigsaws. We use these judgements to assess progress and achievement against individual, school and national targets. We identify and target those children not making expected progress and intervene accordingly. Children's progress and achievement is logged termly in Classroom monitor using the ARE targets and whether or not the children are 'Emerging' 'Met' or 'GDS'. Pupils are tracked using the school tracking system, Insight, which shows progress and attainment. This data is evaluated and analysed through use of the school's data system of pupil progress forms, which are discussed with SLT and the each individual phase within school.

In the Advent (autumn) and Lent (spring) terms we give parents the opportunity to discuss their child's progress and attainment in a teacher/parent meeting. In Pentecost (summer) we write a summary of each child's progress and achievement in the Annual Report for parents

As a core subject mathematics will continue to be central to the work in school. We therefore have a Subject Leader for Mathematics. The Subject Leader leads, manages and develops mathematics across the whole school. The Subject Leader takes responsibility for developing the monitoring of the curriculum and prioritises the purchasing of resources from the limited funds available. Following the Resources Audit made every autumn, lists of current resources in the classrooms and communal areas are available on the server. The Subject Leader and other members of staff will regularly attend courses run locally. Senior management meetings, staff meetings and Key Stage meetings will take place to discuss the on-going development of maths and our commitment to refining and improving the quality of our maths teaching and the standards achieved by the children. These formal settings are in addition to informal support, advice and feedback opportunities throughout the school year. We will continue to evaluate our practice in mathematics teaching and learning, and to improve it in order to prepare English Martyrs for End of Key Stage SATs, progression to secondary education, and for the use of mathematics in adult life.

Policy written by: Katie Macdonald - September 2019

Reviewed by:



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