ST. AUGUSTINE OF CANTERBURY CATHOLIC PRIMARY SCHOOL

School Policy for Mathematics

Mission Statement

"I called you by your name, you are mine." Isaiah 43

The mission of our school is to support and further the teachings of Christ and His Church.

We welcome and embrace individuals of all abilities and cultural backgrounds. We aim to enhance and celebrate their moral, physical, social and emotional development, so that they may reach their full potential in an atmosphere of stability, care and respect.

We believe that education is for all and in partnership with parents, carers, children and the wider Catholic community: we will strive and succeed in a wholly inclusive setting.

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Reviewed by: Miss Lisa Richardson (Mathematics Co-ordinator)

Intent

At St Augustine Catholic Primary school, we are committed to ensuring that children are able to recognise the importance of Maths in the wider world and that they are also able to use their mathematical skills and knowledge confidently in a range of different contexts. We want all children to enjoy mathematics and to experience success in the subject, with the ability to reason mathematically. We aim to ensure that our children have access to a high-quality mathematics curriculum that is both challenging and enjoyable. We want to develop our children into confident mathematicians who are not afraid to take risks. Children need opportunities to make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. It is vital for the children to be able to see how mathematics is relevant to their world, and applicable to everyday life.

We aim to provide a high-quality mathematics curriculum so that all children:

- o become fluent in the fundamentals of mathematics;
- o reason mathematically;
- o can solve problems by applying their mathematics.

We have a mastery approach to the teaching and learning of mathematics, with the expectation that most children will move through the programmes of study at broadly the same pace. Children who grasp concepts rapidly are challenged through rich and sophisticated problems before any acceleration through new content.

Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.

At St Augustine of Canterbury, our children will:

- calculate accurately and confidently using the four operations;
- have quick recall of times tables facts and key age-related facts to enable fluency in Mathematics;
- derive answers from knowledge held in their long-term memory;
- reason in Mathematics, using a range of precise mathematical vocabulary, including well- structured stem sentences;
- represent their thinking through the use of models, images and concrete apparatus;
- problem solve, using a range of strategies, including bar modelling, always choosing the most efficient methods;
- demonstrate resilience when tackling a difficult problem and be able to describe the small steps to achieve a solution;
- demonstrate confident in the topics taught within the National Curriculum showing age appropriate fluency, knowledge and skills to reason and problem solve in a variety of contexts;
- develop confidence when problem-solving independently;
- develop an understanding of mathematical vocabulary and notation;
- develop mathematical concepts in real situations through handling materials, discussion and practical situations;
- have the confidence to apply the knowledge and experience they have gained to other mathematical tasks;
- have an appreciation of the logical aesthetic aspects of mathematics, through problem solving and investigation, linking this with other areas of the curriculum.

The intention of the Maths curriculum at St Augustine of Canterbury is for children to become competent, curious mathematicians. Mathematical skills and knowledge will be taught, explored and revisited so that children know more, remember more and can therefore apply more. Children will develop resilience and self-confidence in applying their learning skills and knowledge.

Through wider curriculum links, we strive to embed maths throughout the curriculum, bringing the subject to life. We aim to go beyond the minimum requirements within the National Curriculum as we aim to prepare the children for later life in the 'big, wide world' and for the next step in their education. We need the children to know the relevance of their learning and that maths is essential to everyday life.

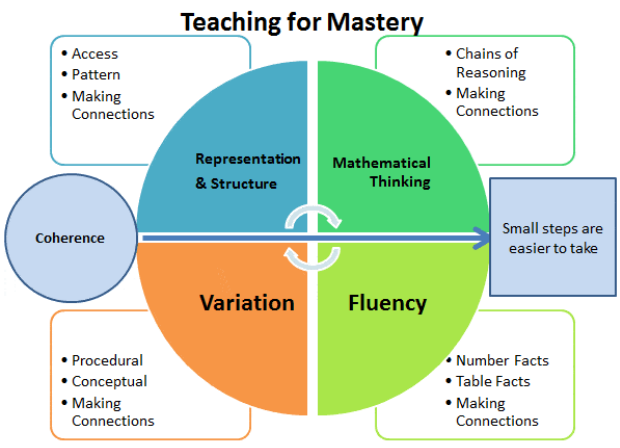
Implementation

We use the Rising Stars Framework from Y1 to Y6 as an objective basis of our curriculum, which is designed to support teachers in their long-term planning of math overviews. We supplement our curriculum using mastery materials supplied from Third Space Maths Hub and the NCETM allowing us to deliver an effective Mastery curriculum.

The Rising Stars documents supplemented with Third Space Learning Mastery materials support teachers to plan mathematical units that are explored progressively and in small steps, drawing on resources, data and suggestions from reliable sources such as NCETM and nrich.co.uk to link mathematical talk and knowledge across the various units.

When planning for objective coverage, teachers are expected to take the following mastery strategies into account:

- Small steps as documented in the NCETM Prioritisation documents and Third Space Learning materials.
- Use Concept Maps and Cartoons - exploring ideas, concepts and theories around the classroom (maths talk is vital).
- Implementing the Concrete, Pictorial and Abstract (CPA) approach to introducing, exploring and applying mathematical concepts.
- Plan and thoughtfully consider key questions and mathematical vocabulary at the entry points of a lesson/ units – these are displayed throughout every lesson and built upon.
- Provide multiple opportunities for verbal and written/drawn reasoning (explaining and using mathematical vocabulary to explain methods or reasoning) within unit exploration.
- Inclusion of relevant problem-solving opportunities, where children are expected to draw on and apply multiple concepts to address or approach a challenge.
- Displaying, modelling and sharing of efficient and accurate methods (with parents/ carers whenever possible through planned workshops and work share afternoons)
- Opportunities to explore maths concepts/objectives at 'greater depth'.
- Include all learners, providing relevant support for those with additional needs (educational, medical or otherwise).



The use of a mastery approach incorporates three key elements: concrete, pictorial and abstract, in helping children explore and demonstrate mathematical ideas, enrich their learning experience and deepen their understanding. Lessons are planned and sequenced so that new knowledge and skills build on what has been taught before.

Teachers ensure that that all objectives are taught by referring to our whole school curriculum map, Progression Grids, Mathematics Ready to Progress criteria and materials from NCETM and Third Space Learning.

We use 'Key Instant Recall Facts', concept maps and our Third Space Learning 'Fluency in Five' approach which allows continuous practise and embedment of knowledge and skill within maths; these being progressive across year all groups. We ensure after a topic has been taught it is revisited as the year progresses, allowing the depth of knowledge to become embedded, and giving the children the chance to deepen their understanding.

Practising the rapid recall of number facts is vital throughout our school. This happens regularly in EYFS and Key Stage 1 in the form of singing, chanting and games. As well as these techniques, in Key Stage 1 and 2, a weekly number-based 'Maths Practice Test (Arithmetic test) is planned to give children the opportunity to practise and improve their recall of number facts. In Key stage 2, all children have access to their own personal account of 'Times Tables Rock stars' and in all Year groups 'Mathletics.'

In the Early Years Foundation Stage (EYFS), we relate the mathematical aspects of the children's work to the Development Matters statements and the Early Learning Goals (ELG), as set out in the EYFS profile document. We follow EYFS curriculum / Development Matters guidance for Mathematics. Through this guidance, we are committed to ensuring the confident development of number sense and put emphasis on the mastery of key early concepts. Children explore, experiment with and investigate numbers and become aware of key models and images (tens frame, Numicon, part- part whole etc). Teachers use the concrete- pictorial-abstract approach to conceptual development.

The National Curriculum

In line with the NC requirements, we use our agreed approach stated in our Maths Calculation Policy, which guides our children though the four operations from EYFS to Year 6. This immersion in mathematics from EYFS to Year 6 ensures that from an early age, children become competent in mathematics, fostering their ability to:

• secure number facts, such as number bonds, multiplication tables, doubles and halves;

• calculate accurately and efficiently, both mentally and in writing; • draw on a range of calculation strategies;

• make sense of number problems, including non-routine 'real' problems;

• develop spatial awareness and an understanding of geometry, statistics and measure.

Mathematical Aims

At St Augustine of Canterbury, in line with the National Curriculum, we aim to ensure that children:

- 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;
- **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;
- foster positive attitudes towards mathematics by **developing pupils' confidence, independence, persistence and co-operation skills**.

At St Augustine of Canterbury, we believe that mathematics is an interconnected subject in which children need to be able to move fluently between representations of mathematical ideas. The programmes of study are organised into distinct domains, but children should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving

increasingly sophisticated problems. They should also apply their mathematical knowledge and understanding to science and other subjects, and will be provided with opportunities to do so.

The expectation is that the majority of children will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of children's understanding and their readiness to progress to the next stage. Children who grasp concepts rapidly should be challenged through rich and sophisticated problems before any acceleration through new content. 'Live marking' and incisive, verbal feedback alongside written feedback will identify those children rapidly within a lesson. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice (Pre and post teaching, through Maths Clinic interventions, homework etc.), before moving on.

EYFS

In the Early Years Foundation Stage (EYFS), we relate the mathematical aspects of the children's work to the Development Matters statements and the Early Learning Goals (ELG), as set out in the EYFS profile document. We follow EYFS curriculum / Development Matters guidance for Mathematics. Through this guidance, we are committed to ensuring the confident development of number sense and put emphasis on the mastery of key early concepts. Children explore, experiment with and investigate numbers and become aware of key models and images (tens frame, Numicon, part- part whole etc). Teachers use the concrete- pictorial-abstract approach to conceptual development.

Teaching Principles

- Teachers believe the vast majority of children can succeed in learning mathematics in line with national expectations.
- The whole class are taught mathematics together.
- The learning needs of individuals are addressed through carefully scaffolding, questioning, manipulatives and appropriate rapid intervention where necessary, to provide support and challenge.
- Children with SEND are provided learning opportunities to match their needs and ensure progress for those individuals.
- The reasoning behind mathematical processes are established. Teacher / child interaction explores how answers were obtained as well as why the method worked and what might be the most efficient strategy.
- Precise mathematical language is used by teachers so that mathematical ideas are conveyed with clarity and precision. Specific time at the start of each lesson is dedicated to exposing and using new, mathematical vocabulary. We strongly believe this provides equity to all learners, including those with a special educational need.
- Sufficient time is spent on key concepts to ensure learning is well developed and deeply embedded before moving on. Paired talk is used to consolidate learning: children are often asked to share a method or explain/ reason with a partner.

SEND

The aim is to ensure that all children make progress and gain positivity from each lesson. All teachers aim to:

• plan lessons so that all pupils can be included;
• use a range of concrete resources effectively to allow access to whole class or group work;
• organise the class and deploy staff to support group or individual needs.

Additional Needs

In order to support children with additional needs:

• questions and tasks are differentiated and sometimes targeted at specific children;
• teachers use a wide range of concrete and pictorial models and images as visual resources to illuminate meaning for all children;
• during whole class teaching, discrete help is given to particular children wherever possible;
• during activities, children are supported by teachers or teaching assistants where appropriate to the learning;
• same day intervention ensures that misconceptions are addressed in a timely fashion.

Features of a lesson

- Lessons last for approximately one hour each day of the week. It begins with a teacher and/or TA input which then allows ample time for independent practice. Independent tasks should include fluency tasks, reasoning, problem solving / higher- order-thinking activities.
- Lessons are focused with one new objective (small step) introduced at a time. Objectives taken from our Rising Stars Framework.
- Difficult concepts and potential misconceptions are identified in advance and strategies to address them are planned (pre-teaching where possible/ use of concrete apparatus etc.).
- Feedback should be provided within the lesson and / or after the lesson where necessary, in order to allow children to move on swiftly in their learning.
- The use of high-quality materials are used to support learning (Nrich, NCETM, Third Space Learning materials, etc.).
- Making comparisons is an important form of developing deep knowledge. The questions, 'What is the same/ different?' are often used to draw attention to essential features of concepts.
- Teacher- led discussion is interspersed with tasks involving child-to-child discussion and completion of time- focused activities.
- The majority of lessons begin with Fluency in Five in order to review prior learning and embed Key Recall facts.
- Children are encouraged to reflect on the key learning points from the lesson.

In the EYFS, children will engage in whole class input; focussed, adult-led activities; and child-initiated learning activities to promote the development of Mathematics.

Links will also be made to mathematics within other subjects so that children can develop and apply their mathematical skills through real life contexts linked with different topics.

Intervention

Teaching is focused, rigorous and thorough, to ensure that learning is sufficiently embedded and sustainable over time. Long-term gaps in learning are aimed to be prevented through speedy teacher intervention – Maths Clinics. Topics are regularly revisited throughout the year to allow for the development of depth and sufficient practice to embed learning. Children who have been identified with gaps in learning attend interventions during assembly time and in addition to the morning maths lesson during the afternoon.

Extending More Able Pupils

As outlined in the NCETM and Third Space Learning materials, teachers will adhere to 'Teaching for Mastery': a set of pedagogic practices that keep the class working together on the same topic, whilst at the same time addressing the need for all children to master the curriculum and for some to gain greater depth of proficiency and understanding. Challenge is provided, by going deeper, rather than accelerating

into new mathematical content. Children who are capable of achieving above age related expectations are identified through regular assessment opportunities.

Classroom Working Walls and Toolkit Stations

Each class has a 'mathematics working wall' where children can view daily learning, mathematical vocabulary and where efficient methods, misconceptions or mistakes can be discussed and used as a teaching and learning point.

Toolkit stations are in every classroom. These offer easy access for children to explore manipulatives related to their current learning objective. Throughout every lesson, they are encouraged to use a wide variety of manipulatives available to help their learning progress.

Assessment, recording and reporting

Formal assessments take place each term using the Rising Stars progress tests. These are used to inform future planning and to identify gaps in the children's learning.

End of KS1 and KS2 take SATs tests in the summer term made up of reasoning and arithmetic papers.

Parents are informed of their child's progress during parent teacher consultations in the Autumn and Spring terms. A written report will be made for each child in the summer term, and SATs results are made available to parents.

In collaboration with the children, individual curricular targets are set in maths. These are shared with parents at parents evening and in the children's contact books. Parents are informed of targets that are set in mathematics following assessments. The children's progress towards achieving their target is reviewed termly and provided to parents.

Impact

Our Mathematics curriculum facilitates sequential learning and long-term progression of knowledge and skills. Teaching and learning methods provide regular opportunities to recap acquired knowledge through high quality questioning, discussion, modelling and explaining, to aid retrieval at the beginning and end of a lesson or unit. This will enable all children to alter their long-term memory and know more, remember more and be able to do more as mathematicians.

The exploration of mathematics should be interactive and engaging, with content made relevant to children's real- world experiences and contextualised thus to support consolidation and retention of knowledge and skill.

Children should approach mathematics with confidence and enthusiasm, and view tasks and challenges that call for application of varied knowledge across units of work with resilience and a willingness to collaborate.

Approach and response to reasoning activities should improve term on term, with the expectation that by the end of the year, children are happy to accurately define and use mathematical vocabulary introduced by their teacher, as well as complete stem sentences to complete mathematical statements or reasoning.

What difference does our mathematics curriculum make to our children?

- Most children will achieve end of year expectations for their year group
- Children will have a positive and engaged attitude towards maths.

- They will be ready to progress to the next stage of their maths learning.
- Children will be confident in applying their maths skills in a range of familiar and unfamiliar context.
- They will be resilient in their work with a "can do" attitude and will talk enthusiastically about their maths learning.
- Children will have made connections within their maths learning, but also with how their learning relates to the real world.

Equal Opportunities

At St. Augustine of Canterbury Catholic Primary School, we do not tolerate discrimination in any way. We strive to create an environment free of unfairness and prejudice. We incorporate mathematics into a wide range of cross-curricular subjects and seek to take advantage of multi-cultural aspects of mathematics. In the daily mathematics lesson, we support children with English as an additional language in a variety of ways, e.g. repeating instructions, speaking clearly, emphasising key words, using picture cues, playing mathematical games, encouraging children to join in counting, chanting, finger games, rhymes etc (see Equal Opportunities policy).

The Role of the Co-ordinator

It is the role of Miss Lisa Richardson the mathematics co-ordinator to:

- Ensure teachers are familiar with the NC programmes of study and the planning framework and help them to plan and deliver lessons
- Prepare, organise and lead CPD
- Work with the SENCO to deploy support staff to address needs within the school.
- Observe lessons and conduct book monitoring and pupil conferencing.
- Liaise with other mathematics co-ordinators, and attend available CPD.
- Inform parents through workshops.
- Discussions with the Headteacher, the SLT and the curriculum committee - Monitor and evaluate mathematics provision in the school

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