

Elworth C of E Primary School



'Love God, Love Learning, Love One Another.' Matt 22:36-39

Mathematics Policy

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Reviewed By:	MrsS. Buckley
Approved By:	Mr N. Garratt
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Nominated Governor:	Mr M. Moulding

'Love God, Love Learning, Love One Another.' Matt 22:36-39

At Elworth we embrace The Church of England's vision for education which is 'Deeply Christian, Serving the Common Good.' When Jesus was asked which was the greatest commandment, he responded with *'Love the Lord your God with all your heart, all your soul and all your mind' and 'Love your neighbour as yourself'* (Matt 22:36-39). These timeless words are at the heart of our vision, nurturing our community and shaping the ethos of our flourishing school.

School's theologically rooted Christian mission

At Elworth we create a stimulating and caring environment, grounded in Christian belief and practice, so that all members of our school community can flourish. We therefore aim to provide an education that provides pupils with opportunities to explore and develop their own values and beliefs, spiritual awareness, high standards of personal behaviour, a positive caring attitude towards other people, an understanding of their social and cultural traditions and an appreciation of diversity within modern Britain. We maintain that learning should be a rewarding experience for everyone; it should be enjoyable. Through our teaching we equip children with the skills, knowledge and understanding necessary to be able to make informed choices about the important things in their lives. Our six Christian values underpin all that we teach : Courage, Community, Perseverance, Generosity, Compassion, Friendship. Our school rules are: To be Ready, To be Responsible and To be Respectful. These are embedded in each child's mind so that they are fully prepared for living each day successfully. We aspire that all our children are a blessing beyond the school walls, beyond their families, beyond their local community, as global citizens. To achieve this the children and adults at Elworth embark on an exciting and adventurous journey together joining in with God's redemptive work in our lives and throughout the world and learn to be advocates for change.

Maths Philosophy

Mathematics teaches children how to make sense of the world around them through developing their ability to calculate fluently, reason and solve problems. It enables children to understand relationships and patterns in both number and space in the world around them. Through their growing knowledge and understanding, children learn to appreciate the contribution made by many cultures to the development and application of mathematics. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment.

Aims

The aims for teaching mathematics at Elworth CE Primary School are:

- For all pupils to have mastery of maths meaning pupils acquire a deep, long-term, secure and adaptable understanding of the subject.
- become fluent in the fundamentals of mathematics 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
- to promote enjoyment and curiosity of learning through practical activity, exploration, investigation and discussion;
- to understand the importance of mathematics in everyday life.
- to develop children's ability to move between concrete, iconic and symbolic representations fluently and confidently.
- to promote confidence and competence with understanding and using numbers and the number system;
- to develop a practical understanding of the ways in which information is gathered and presented;
- to explore features of shape and space, and develop measuring skills in a range of contexts;
- to enable children to select and use a range of mathematical tools effectively.
- to promote and provide opportunities for children to develop the core learning skills of confidence, determination, curiosity, aspiration, teamwork, independence, communication and focus.

- to develop sustainable learning for pupils for the future

Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programmes of study are, by necessity organised into distinct domains, but pupils 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 to science and other subjects.

Implementation

Teaching and learning style

Elworth CE Primary School has introduced and is developing a Mastery approach to learning in Mathematics. The mastery of the maths curriculum is something that we want *all* pupils to acquire. Our mastery approach to teaching maths has the aim — to help pupils, over time, acquire mastery of the subject. We believe mastery of maths means a deep, long-term, secure and adaptable understanding of the subject which develop:

- fluency (rapid and accurate recall and application of facts and concepts)
- a growing confidence to reason mathematically
- the ability to apply maths to solve problems, to conjecture and to test hypotheses.

What you will typically see:

- The large majority of our pupils progress through the curriculum content at the same pace. Differentiation is achieved by planning lessons accessible to all children making good use of scaffolding with visual representations and apparatus and further support through pre-teaching and rapid intervention.
- Practice and consolidation play a central role. Carefully designed conceptual and procedural variation in the Power Maths resources builds fluency and understanding of underlying mathematical concepts in tandem.
- Emphasis on fluency and understanding number to provide a firm foundation in maths – use of Number Sense Maths and NCETM Mastering Number Programme to support this.
- Teachers use precise questioning in class to test conceptual and procedural knowledge, and assess pupils regularly to identify those requiring intervention so that all pupils keep up.
- Teachers use the concrete, pictorial and abstract approach (CPA) to ensure that procedural and conceptual understanding are developed simultaneously.
- Emphasis placed on ‘learning’ through reasoning, developing multiple strategies and concepts towards understanding.
- Challenge for pupils grasping concepts quickly is provided through depth and breadth of experience
- Daily opportunities to reason and problem solve.

Curriculum map

With the Power Maths scheme, pupils spend longer on key mathematical concepts in number, those children who grasp the concepts more quickly are given opportunities to deepen their knowledge and improve their reasoning skills rather than accelerating on to new curriculum content.

Lesson Design

Through the use of the Power Maths (DfE Recommended books), teachers begin lessons with a ‘hook’ to engage children in learning. This sets the objective within a real-life context problem (picture, scenario, story). The teacher uses modelling & demonstrating through images/manipulatives/ ICT using clear mathematical vocabulary. Children have the opportunity to investigate new learning with the use of concrete apparatus and visuals to enforce the concept. Children have the opportunity to practise the new skills using carefully crafted and varied questioning. The problem will be revisited and children can then apply their new learning to solving the problem. The children will have the opportunity to feed back their learning. Those children who are ‘rapid graspers’ will either be challenged with deeper thinking questions, asked to show their understanding in different representations or through writing own word problems/ explanations etc...

Adaptation

'Differentiation' will now be seen by children working on differing complexities of problems within the same objective. 'Rapid graspers' will have challenging problems to solve to ensure that they continue to make progress. There will be some children who are using practical equipment for longer in order to support learning. While our aim is that the gap between mathematical attainment in our classes is closed, we accept that in some KS2 classes there is already a gap in the attainment.

Challenge and extension for 'rapid graspers'

- Reasoning challenges
- Enquiry tasks.
- Broader enrichment tasks in a range of contexts
- Opportunities to write explanations
- Opportunities to explain to others
- Opportunities to generate own questions and problems – innovate
- Representation of a concept in a variety of ways to show conceptual understanding

Interventions

- There is great emphasis on Assessment for Learning at all points within the lesson by Teacher/Teaching assistant and activities adapted during the lesson if necessary. Pupils are identified for rapid intervention or pre-teaching.
- Targeted support – afternoon by some TAs
- The use of the Number Sense programme as an intervention supports pupils' understanding of number and number fluency
- Next day/same day 1:1/ small group intervention for children who have not grasped concepts.
- Pre-teaching to targeted children before new concepts are introduced.

Resources and Learning environment

Each class is equipped with maths base boxes for each table. These base boxes contain a variety of year group-appropriate manipulatives that children can choose to use to support their learning. Examples of these resources include place value counters, dice, bead strings, arrow cards, linking cubes, counting objects and laminated sheets of part-part whole, place value charts and bar models.

We aim to create a rich and stimulating Maths environment that promotes learning and independence through Maths Working Walls in each classroom. Maths Working Walls and resource areas in the classroom will:

- Support the children with their Maths.
- Contain information relevant to current teaching (key vocabulary, models/images, success criteria, targets).
- Include Maths resources clearly labelled and accessible for the children.
- Be clear/large enough for children to read.
- Be changed regularly so it doesn't become just 'wallpaper'.

Mathematics Curriculum Planning

Power Maths provides the Long Term overviews for each year group. Teachers follow the structure of the units, and, using the Power Maths Teacher Guides for each unit, plan daily lessons. The focus in the daily planning is Assessment for Learning and teachers identify which children have not grasped the objective and which children have exceeded. This informs the next day's planning and rapid intervention will be given to those pupils who did not grasp the concept before the next lesson.

Links with other curriculum areas

Our school runs a flexible, creative theme-based curriculum, and although much of the Mathematics is taught during a daily maths lesson, we constantly seek to make meaningful cross-curricular links through our themes in order to embed maths into the bigger picture of each child's learning, and to provide real life

relevance to the concepts and skills that they are acquiring. This is a two-way process, so sometimes the maths objectives may be taught as part of another topic, and other times the other curricular objectives may be taught as part of the maths. Our school places great importance on Learning Outside the Classroom and teachers are encouraged to include opportunities for this in their planning and teaching.

STEM

Science, Technology, Engineering and Mathematics (STEM) is a new area of development in school and is an opportunity for maths to be applied in other areas of the curriculum. Information and communication technology enhances the teaching of mathematics significantly. It also offers ways of impacting on learning which are not possible with conventional methods. Teachers can use software and i-pad apps to present information visually, dynamically and interactively, so that children understand concepts more quickly. Children may use ICT (including i-pad apps) in order to learn or apply mathematical concepts and skills either within maths lessons or in other curriculum areas.

SEN

At our school we teach mathematics to all children, whatever their ability and individual needs. Mathematics forms part of the school curriculum policy to provide a broad and balanced education to all children. Through our mathematics teaching we provide learning opportunities that enable all pupils to make good progress. We strive hard to meet the needs of disadvantaged and vulnerable children, including those pupils who generate Pupil Premium, those with special educational needs, those with disabilities, and those learning English as an additional language. We take all reasonable steps to achieve this.

When progress falls significantly outside the expected range, the child may have special educational needs. Our assessment process looks at a range of factors such as classroom organisation, teaching materials, teaching style, and differentiation so that we can take some additional or different action to enable the child to learn more effectively. Ongoing assessment for learning, and summative assessment allows us to consider each child's attainment and progress against expectations. This ensures that our teaching is matched to the child's needs.

Home/school links

We aim to raise the profile and understanding of our approach to Maths with parents, and they are encouraged to be actively involved in supporting children's learning in school in a number of ways. Parent Workshops are organised with relation to the curriculum, assessment and supporting children's mathematical learning. There are links to Maths websites and other useful documents and resources on the school website.

Homework will be sent home as appropriate in order to reinforce concepts and skills being learned in school. (See Homework Policy).

Impact

Tracking Progress

At the beginning and end of each teaching sequence, teachers informally assess pupils using the pre-assessment and Power Maths end of unit assessments to inform their future planning/intervention support. At the end of a term, children's learning will be assessed using White Rose Hub assessments through questions and problems that require the pupils to remember, understand, apply, analyse and evaluate their knowledge and skills. The results will be kept by the teacher and used to inform termly pupil progress meetings. A judgement of whether the children are on track to achieve ARE in maths will be made each term and recorded in Target Tracker.

Assessment is tracked termly using White Rose Maths Assessments and results logged on the school's tracking system. Pupils' progress is discussed in termly Pupil Progress Meetings. Children who haven't made progress are put on a Children Causing Concern list and these children are a focus in teacher's planning. We pass all assessment and tracking information on to the next teacher at the end of the year, so that s/he can plan for the new school year.

Teachers in Year 2 will also use the optional End of Key Stage National Curriculum tasks and tests as one part of the assessment picture for each child and teachers in Year 6 will also use the statutory End of Key Stage National Curriculum Tests.

We give parents the opportunity to discuss their child's progress and attainment each term in a teacher/parent meeting. We also write a summary of each child's progress and achievement in the Annual Report for parents.

Governors

Elworth CE Primary has a designated link governor who:

- a) Meets with the Mathematics Subject Leader at least once a year to find out about;
 - the school's systems for planning work, supporting staff and monitoring progress;
 - the allocation, use and adequacy of resources; and
 - how the standards of achievement are changing over time.
- b) Visits School and talks to pupils about their experiences of Mathematics;
- c) Promotes and supports the positive involvement of parents in Mathematics;
- d) Attends training and other events relating to the Mathematics curriculum;
- e) Reports jointly with the Subject Leader, both for the School Prospectus and to the governing body with recommendations, if appropriate, once a year.
- f) is understanding and supportive of our aims in the learning and teaching of Mathematics and to review this policy annually.

The role of the Subject Leader

The Head teacher will:

- Provide support by encouraging staff and praising good practice.
- Monitor learning and teaching through lesson observations.
- Monitor planning and reviews.
- Give feedback to teachers following lesson observations.
- Support staff development through in service training and provision of resources.

The Mathematics Leader will:

- Provide a strategic lead and direction for Mathematics in the school;
- Provide support and advice to staff in the delivery of the Mathematics programme of study;
- Remain informed about current developments in the subject by attending INSET sessions and being involved in independent research and reading;
- Disseminate relevant information to staff;
- Deliver INSET sessions to staff, to support staff development;
- Monitor and evaluate teaching and learning of Maths;
- Monitor standards in the subject, through planning and work scrutiny, statistics, quality of teaching and pupil assessments;
- Order and maintain resources to enhance effectiveness of Maths teaching within the school;
- Consider with staff and work with SMT members in the evaluation and planning of actions included within the School Development Plan.

The Class teacher will:

- Be responsible for the teaching of Maths as set out in the policy.
- Provide planning and reviews for the Head Teacher and Maths leader to have access to.
- Provide samples of maths work to the Maths leader when required.
- Assess children's work in order to detail future planning.