Maths Policy

January 2024

Document control and record of amendments

Version	Reason for amendment	Sections amended	Amended by/date	Reviewed by/date	Approved by /date
1.0	Full revision of policy in line with changes of ethos and planning	All	G Radford January 2024	EPS Staff 31.1.24	SLT January 2024

Date for Review: May 2027

Contents

1. Curriculum Intent

This subject policy is designed to support the overall curriculum intent of Elmbridge Primary School. This is summarised as:

- Our children will be confident to embrace the next stage of their learning
- Children will have enquiring minds, be independent and resilient
- Children will value the importance of reading and be able to communicate ideas effectively
- Staff and children will know how to look after their physical and mental health
- Staff and children will show respect, tolerance and compassion for each other
- The Elmbridge curriculum will evolve to reflect the knowledge and skills needed for life in the 21st Century

Maths Intent

Maths counts

Mathematics is the key to unlocking the secrets of the universe! At Elmbridge, we excite and inspire our children to see themselves as mathematical explorers. Children leave us being fluent in number, having the ability to reason mathematically and having the strategies instilled in them to solve problems. We cultivate our children's inquisitive nature and curiosity, fostering a positive attitude towards maths with our mantra 'Yes I Can!' Our ambition is that all children believe in themselves enough to approach maths with courage and resilience, knowing that mistakes make us masters.

$$\frac{\textit{Maths + 'Yes I Can!'}}{\textit{Supporting each other}} = \textit{endless possibilities!}$$

2. Implementation

At Elmbridge Primary School, we adopt a mastery approach to the teaching and learning of mathematics. Teachers adapt and supplement the 'CanDo' maths framework, alongside the National Curriculum, according to the needs of the children, to create a bespoke Elmbridge maths curriculum.

Strands of maths

- Number:
  - number and place value;
  - addition, subtraction, multiplication and division;
  - fractions (including decimals and percentages)
- Measurement
- Geometry:
  - position and direction
  - properties of shape
- Statistics
- Algebra
- Ratio and Proportion

The progression of objectives document outlines how the curriculum is progressive from reception to year 6.

Maths lessons are timetabled for 60 minutes, five times a week, which gives children enough time to develop a fluency in number, their verbal and written reasoning and problem solving, consolidating their skills. It is an expectation that children produce written work in their books for a majority of these lessons but not all.

Design principles – The Five Big Ideas in Teaching for Mastery (NCETM)

Coherence	Representation and Structure	Mathematical Thinking	Fluency	Variation		Growth Mindset
Curriculum breadth, progression, depth and relevance Lesson design Environment	CPA (concrete, pictorial, abstract) Connections Personalisation Calculation policy	Maths talk Vocabulary Reasoning Twist/Solve it MOT sessions	Consolidation / recall Arithmetic Times table coherence MOT sessions Do it	Conceptual Procedural Task Design Do/Twist/Solve it		'Yes I Can' Maths talk

Lesson design (Key Stage 1 and 2)

MOT (Maths On Track)	Main Lesson
• Fluency of arithmetic • Retrieval Practice • Pre-teaching • Develop understanding of maths vocabulary • Maths talk • Intervention • Exposure to problem solving	• Hook/Teach • Practise • Independent learning: Do it / Twist it / Solve it

Specific strategies to help children solve problems will be taught discretely, as well as integrated within maths lessons. The 7 strategies we teach are:

- Act it out
- Trial and improvement
- List and table
- Pattern
- Simplify
- Working backwards
- Algebra

These strategies are progressive (see long-term progression document).

Early Years
Mathematics is taught in reception as an integral part of the work covered during the year. We relate mathematical aspects of the children's learning to the expected levels of development set out in the Early Years Foundation Stage profile handbook, with a focus on number and numerical patterns.

Key Stage 1 - Years 1 and 2 (National Curriculum, 2013)
The principal focus of mathematics teaching in key stage 1 is to ensure that children 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 [for example, concrete objects and measuring tools].

At this stage, children 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, children 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.

Children 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 - Years 3 and 4 (National Curriculum, 2013)
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 - Years 5 and 6 (National Curriculum, 2013)
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 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 increasingly 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.

3. Methodology

Planning
Each subject curriculum has been planned to ensure that there is progression from early years to year 6 and so that lessons follow a deliberate sequence. This will enable children to build on previous learning, revisit areas of the subject in order to deepen their learning and allow for subject knowledge and skills to be built upon as the child makes the transition between year groups. Overall curriculum objective planning is used to create medium term plans in each year group. Lessons are taught from medium term plans, but with the flexibility to respond to children's needs, as well as the contributions they bring to the classroom.

Teaching (see teaching and learning policy)
From reception through to year 6, children are taught maths within their classes, as part of a daily maths lesson. Maths lessons are driven by a learning outcome. There will be explicit reference to previous learning when this is pertinent.

Through the adaptation and scaffolding of the curriculum, all children will receive high quality teaching and appropriate support in order for every child to reach their full potential. Children may receive additional support, if necessary, outside of the maths lessons. Children that have a 'My Plan' or 'My Plan Plus' may also be withdrawn in order to receive intervention that focuses on the child's more specific individual needs.

Recording
Most work will be recorded in maths books. Children may also have opportunities to present work that may include:

- Dialogue between child and teacher/teaching assistant
- Use of manipulatives and representations
- Photographs

Supporting Reading at Elmbridge Primary School
At Elmbridge Primary School, reading is everything. Maths will support reading by:

- Encouraging children to use the correct mathematical vocabulary
- Pre-teaching mathematical vocabulary
- Encouraging children to read written questions and answers to reasoning problems

Enrichment and Cultural Capital

- Competitions eg. times table competitions (TTRS), 24 game.
- Clubs eg. 24 club.
- Enterprise eg. 'Dragon's Den' financial capability.
- Visitors eg. 'Puzzle man' working with years 1-6 leading geometry workshop.
- Year 6 children helping younger children within maths lessons.

4. Impact

Formative and Summative assessment
The school uses the principles of on-going formative assessment, which helps them understand what a child has learned and will help dictate the next steps. Children's attainment against the curriculum strands will be recorded to help identify any gaps in learning.

Children will complete four formal assessments per year.

1. To be given within the first week of the new academic year, to assess knowledge from first half of the previous year.
2. To be given the first week after October half term, to assess knowledge from the second half of the previous year.
3. To be given before February half term to assess knowledge from the first half of the current year.
4. To be given in the summer term to assess knowledge from the second half of the current year.

KPIs (key performance indicators) are used by teachers to identify which children are ready to progress to the next year group and to close gaps in learning when needed.

Monitoring

Subject leaders are responsible for monitoring the standards in their subject. They should aim to formally monitor their subject 3 times per year and complete a monitoring report form, which is then shared with the SLT. The monitoring should link to the subject action plan and may, in turn, lead to new action points being set. The Curriculum Governors should be invited to support the monitoring at least once per year.

Moderation
A part of the role of the subject leader is to organise moderation across the different classes and year groups (this could be as part of a staff meeting or during PPA time). The subject leader should also aim to make links with other schools, so standards can be judged against those in other settings.

5. Continuing Professional Development

The subject leader should aim to keep up-to-date with their own subject knowledge and skills, as part of their on-going appraisal. They should, in turn, ensure that teachers have the relevant knowledge and skills they need to deliver high quality maths lessons.

They may decide to:

- Audit staff knowledge in order to identify gaps
- Deliver training during staff meetings, Twilight or INSET
- Invite external experts to deliver training
- Continue to collaborate with the GLOW Maths Hub and Gloucestershire University.

6. Equal opportunities

All children have an entitlement to access the maths curriculum and all children will have access to the resources within the school. All children will be given the opportunity to participate in all activities regardless of gender, race or ability. This will be supported by:

- Using TA/Teacher support and/or interventions for children
- Use representations and manipulatives to scaffold learning
- Referring to MY PLANS or EHCP targets for SEND children
- Supporting families so all children are able to take part in maths activities
- Supporting EAL children with resources available in school
- Monitoring the progress and attainment of disadvantaged children

7. Spiritual, Moral, Social and Cultural Development

As a school, we **work together** to enable our children to be:

Ready, Respectful, Safe

Elmbridge Primary School supports SMSC in all subject areas. In maths, this may look like the following:

Spiritual development
Developing as a mathematician opens doors for children to broaden their experiences. At Elmbridge Primary School, we want children to have a sense of enjoyment and fascination in learning about themselves, others and the world around them. The skills taught in maths helps children to do this, linking with a range of other subjects.

Developing problem solving skills and strategies enable children to be creative in their learning. At Elmbridge Primary School we promote a growth mindset, fostering a love of maths and curiosity in finding real life contexts and meaning to the maths. We encourage children to reflect on their work and justify their answers.

Moral development
As a mathematician, you need to be able to explain your reasoning. This is a transferable skill and so children develop the ability to persuade and convince people of their thought processes, supported by evidence. Rich 'maths talk' with appropriate mathematical vocabulary is encouraged and built into the curriculum to develop children's oracy skills, with a focus on listening and justifying viewpoints and strategies to peers.

Social development
The maths curriculum at Elmbridge Primary School is designed to encourage collaborative working. There are planned opportunities built into MOT sessions, 'Twist it' and 'Solve it' questions for working alongside peers.

Cultural development
Many of our famous historical mathematicians are from different cultures. We believe that people from all cultures are able to access maths and we want to celebrate all achievements.

Maths teaches us to analyse, justify, develop creative solutions to problems and identify patterns. All of these transferable skills are vital in developing industries such as finance, technology, education and healthcare and helping to tackle global issues.

8. Links to other policies

- Teaching and Learning
- SEND
- English as an Additional Language
- Staff Development
- Feedback & Assessment
- SMSC Development
- Off-Site Visits
- Pupil Premium
- Safeguarding and Child Protection
- Transition
- Young Carers and Young Ambassadors

9. Links to other subjects

Links to other subjects

Connections to other subject areas may be made when teaching maths, if they help a child develop their knowledge and understanding of the maths curriculum. These may include:

- Wellbeing principles – growth mindset, perseverance
- Reading – oracy, encouraging children to 'talk' maths
- Writing – written reasoning, taught mathematical vocabulary
- Design and Technology – measuring, weighing, shape in cooking and nutrition, textiles and woodwork
- Geography – coordinates, graphs, charts
- PE – OAA, measuring distances
- History – roman numerals, timelines
- Computing – code, pattern, interpreting data, graphs, statistics
- Science – interpreting data, graphs, statistics
- Art – symmetry
- French – counting