At St Mary's we champion every child to be the **best that they can be.** Our knowledge-led curriculum therefore endeavors to develop our children's **character**, **core skills**, **creativity** and sense of **community**. Supported by our school's vision, ethos, and position as a junior school, we believe that our specialist knowledge of the Key Stage 2 age range ensures **improving outcomes, opportunities, and experiences for all our children.** To achieve this, we are aspirational for our pupils, instilling high expectations, the passion, perseverance, and stamina to succeed.

Maths Policy

Ely St Mary's C of E Junior School

Written/reviewed by:	Rebekah Gardner	**Date:** November 2023
Next review due by:	November 2026	
Related Documents:	In addition, please see: - Teaching and Learning Policy - SEND Policy - Pupil Premium Strategy - Most Able Policy - Feedback Policy	
Approved/Ratified by	**LGB meeting on 14th December 2023**	

1. Introduction and Aims

At Ely St Mary's, we believe maths is an important part of a child's development throughout school. We intend on delivering a curriculum which allows children to be part of creative and engaging lessons that will give them a range of opportunities to explore maths following a mastery approach. Our approach will give each child a chance to believe in themselves as mathematicians and develop the power of resilience and perseverance when faced with mathematical challenges. We're building a whole culture of deep understanding, confidence, and competence in maths – a culture that produces strong, secure learning and real progress. We foster positive 'can do' attitudes and we promote the fact that 'We can all do Maths'. We believe all children can achieve in maths. We use mistakes and misconceptions as an essential part of learning and provide challenge. We're shaping assured, happy, and resilient mathematicians who relish the challenge of maths. They become independent, reflective thinkers, whose skills not only liberate them in maths but also support them across the curriculum.

We aim for all children to:

- become fluent in the fundamentals of mathematics so that they develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- be able to solve problems by applying the mathematics to a variety of problems with increasing sophistication, including in unfamiliar contexts and real-life scenarios.
- reason mathematically by following a line of enquiry and develop and present a justification, argument or proof using mathematical language.

- have an appreciation of number and number operations, which enables mental calculations and written procedures to be performed efficiently, fluently and accurately to be successful in mathematics.

To do this, all children will be presented with a curriculum which engages and entitles them to the same quality of teaching and learning opportunities, striving to achieve their potential. Children will make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. The curriculum provides equal opportunities for children to apply their mathematical knowledge to other subjects. (cross-curricular links). We deliver a curriculum which is in line with the expectations in the National Curriculum 2014.

1.1 Objectives

Our objective is to develop mathematicians who can successfully achieve the above aims within a broad, balanced and enjoyable maths curriculum. To do this, pupils will be able to retain and apply previous and current knowledge, demonstrating their full understanding and mastery of a mathematical concept, idea or technique by:

- quickly **recalling** knowledge and number facts (e.g. number bonds, times tables)
- **recognising** it in new situations and contexts;
- **describing** it in their own words, making use of mathematical vocabulary;
- **representing** it in a variety of ways
- seeing **connections** between it and other facts, ideas or other areas of maths;
- **applying** it appropriately to different problems or situations supported by **logical thinking** about how to approach a task;
- showing mathematical stamina, **persevering** with problems where the solution is not obvious
- **explaining** it to someone else
- **creating** their own examples (and non-examples) of it;

Through coverage of the Ely St. Mary's maths curriculum, we will have:

- Children demonstrate a quick recall of facts and procedures. This includes the recollection of the times tables.
- Children learn, practise, develop and become fluent and accurate in calculation methods.
- Children show confidence in believing that they will achieve.
- Each child achieves objectives (expected standard) for year group.
- The flexibility and fluidity to move between different contexts and representations of maths.
- The chance to develop the ability to recognise relationships and make connections in maths lessons.
- Mathematical concepts or skills are mastered when a child can show it in multiple ways, using the mathematical language to explain their ideas, and can independently apply the concept to new problems in unfamiliar situations.
- Children show a high level of pride in the presentation and understanding of the work.

2. Organisation and Planning

At Ely St Mary's we have adopted the White Rose schemes of learning throughout the school.The fundamental idea behind The White Rose Hub curriculum design is to support pupils to be able to perform simpler tasks so they can then move on to perform more complex tasks. This thinking gives rise to a typical sequence of 'blocks' of mathematics. Within each of these blocks, there are 'small steps' which are again sequenced in order of difficulty and dependency. Each step builds carefully from the previous step, building on pupils' prior knowledge to develop new skills, with nothing left out. Each block starts with a review.

It is a combination of both 'mastery' and 'spiral' approaches in our curriculum. It follows many of the mastery principles – spending longer on topics to help gain deeper understanding, making connections, keeping the class working together on the same topic and a fundamental belief that, through effort, all pupils are capable of understanding, doing and improving at mathematics. But we also recognise that just spending a good chunk of time on a topic doesn't mean that all pupils will 'master' it the first time they see it, and that they need to see it again and again in different contexts and in different years to help them truly develop their understanding on their journey to mastery, so we've built in the revisiting and reinforcing features of spiral curricula too.

2.1 Planning

- In school, we follow the national curriculum and use the White Rose Schemes of Work as a guide to support teachers with their planning and assessment.
- Rather than a 'plug and play' approach teachers make use of the WRH materials to plan lessons, personalising the pitch and delivery to their own classes.
- To provide adequate time for developing key skills in fluency, reasoning and problem solving, each class teacher will provide at least 5 daily maths lessons per week for at least 45 minutes to 1 hour a day.
- The calculation policy is used within school to ensure a consistent approach to teaching the four operations over time.

Teaching

- At the start of each new topic, key vocabulary is introduced and revisited regularly to develop language acquisition, embedding as the topic progresses.
- All lessons begin with retrieval practice, focusing on arithmetic fluency – the foundation of children's ability to use and apply.
- Children are taught through clear modelling based on the Rosenshine Principles of Instruction– I do / We do /You do and can develop their knowledge and understanding of mathematical concepts. The mastery approach incorporates using objects, pictures, words and numbers to help children explore and demonstrate mathematical ideas, enrich their learning experience and deepen understanding at all levels.
- Children can ACQUIRE the skill, APPLY the skill or DEEPEN the skill within the lesson – this is presented in the form of a question strip with the following headings – Practice / Use and Apply / Reason and Explain / Depth.
- Children with SEND are included in whole class lessons and teachers provide scaffolding and relevant support to enable them to achieve objectives alongside their peers. For those children with individualised targets and specific needs, such as those specified in an EHCP, staff work to plan bespoke activities within the mainstream classroom environment where this is appropriate.
- Live marking within the lesson ensures quick intervention of any misconceptions and children respond using purple pen.
- Children are encouraged to use jottings - Show me / Prove it - where children can also identify their errors and correct.

Times Tables

The teaching of multiplication facts continues to be a discrete focus, where the application of these skills are essential for accessing other areas of mathematics. To make the learning cross curricular, links are made wherever possible and are encouraged to apply skills from all areas to complete real life challenges and give learning a purpose.

Times Tables are recognised as essential to access many mathematical concepts and knowledge. In preparation for the DFE Multiplication Tables Check (MTC) for children in Year 4, Tackling Times Tables and TTRockstars are whole school learning supports to promote the learning of times tables with increasing speed, fluency and accuracy. By the end of Year 4 we aim for all children to know their times Tables up to 12x.

The order in which children should learn their times tables (as outlined in the National Curriculum) is:

By end of year 2 – 1x, 2x, 5x and 10x	Blue
By end of year 3 – 3x, 4x and 8x	Green
By end of year 4 – 6x, 7x, 9x, 11x and 12x	Red

Year 5 & 6- revisit and revise all of the times tables and focus on recalling fluently the division facts; e.g. 4 x 6 = 24; 24 ÷ 4 = 6 There are extension sheets to each where the fluency of multiplication facts are required.

Calculations

Calculations are encouraged to develop fluency in their recall of key facts and a whole school approach to the teaching of calculation strategies is developed across the whole school. This ensures a consistent and progressive approach and prepares children for transition to secondary education and beyond. Additional time is allocated to arithmetic to ensure key skills in calculations are retrieved.

All children do a weekly arithmetic test giving children regular practice at completing tests, independently identifying their targets, and supporting them towards their goals.

Complete Maths Tutor

All **Year 5 and 6** students are provided access to Complete Maths Tutor which is an online tutoring package that helps students to become confident mathematicians. The online package follows a familiar process that is proven to be the most effective way of 1 -1 tutoring.

The process involves the following key aspects:

1. Students complete a 'Readiness Quiz' which covers the prerequisite knowledge students need to complete the topic.
2. Teacher instruction is delivered by students watching a short video.
3. Paired Modelling – teacher models a question and then the student has an opportunity to work through a similar question.
4. Quiz to test the knowledge and a Quiz to cover previous material.

Students will be able to access the online tutoring package at school and at home.

We suggest that students spend approx. 1 hour each week on their tutor portal. Students can make the choice of either working through their **Year Courses** set for them or completing the **Diagnostic Quiz** which will then allow students to focus on areas of maths which will have the most impact on their future progress.

2.2 Resources

- Maths working wall – to support children in their current learning and enable independence. Vocabulary, examples, objectives, purpose, steps to success and resources.
- White Rose Hub Medium Term Plans
- ESM Calculation Policy
- Topical Resources Y3-6 Arithmetic Weekly Tests Headstart Arithmetic Y3-6
- Tackling Times Tables online / Paper Resources TTRockstars
- Classroom Secrets
- I See Reasoning – LK2
- I See Reasoning – UK2
- I See Problem-Solving UK2
- Enriching Maths
- Cross Curricular Word Problems
- NCETM Mastery in Maths
- Progression and Reasoning across topics and year groups Pitch and Expectations
- NRICH KS2 Framework
- Concept Cartoons

  Resources are in the Maths Folder on Sharepoint

2.3 Equal opportunities

Every child has the right to access the full Maths curriculum regardless of gender, race and ability. Learning objectives, activities and adult support will be adapted to meet the needs of all pupils including those with SEND and higher attaining children. See both our SEND policy and our Most Able Policy. Pupil Premium funding can also be allocated to facilitate disadvantaged pupils in pupils in accessing extracurricular opportunities in subsiding enrichment trips, visits and experiences relating to Maths.

2.4 Assessment

Assessment is an integral part of the maths curriculum and not an addition to it. Children's work in mathematics is assessed from three aspects:

1. Informal – formative assessments are made continually by questioning the children, observing, and monitoring their work throughout a lesson. These short-term assessments are closely related to the learning objectives for the lesson and help inform next steps.
2. Periodic assessments take place at the end of a unit using the White Rose Assessment materials to check progress and understanding of content covered. This information also informs interventions.
3. Summative assessments - this is the use of tests and formal assessments to find out what the children have learnt and retained over time. The DEMAT Academy Trust set summative assessments through the use of Headstart Maths – their focus is on the domains of Place Value, Addition and Subtraction for Years 3-5 and Y6 includes Multiplication and Division. ESM also uses Headstart Maths Scaled Scores in Years 3-5, which are in the SATs format and allow Y3-5 the familiarity of the tests in preparation for Y6 and beyond.

A whole school tracking system is used to closely track children's progress throughout the school. Teacher assessments are entered and analysed via pupil progress meetings to identify and plan for any children at risk of not achieving age related expectations or greater depth.

2.5 Monitoring and Evaluation

The implementation of this policy will be monitored by the subject lead for Maths and the senior leadership team. The quality of Maths teaching and work will be evaluated through learning walks, lesson drop ins, pupil voice and work sampling. The link Maths school governor will support the monitoring of this subject area at least annually (e.g. via our Governor Day).

3. Contribution of Maths to other subjects in the curriculum

Learning Maths presents opportunities for the reinforcement of knowledge, skills and understanding developed in other curriculum areas. These opportunities can be exploited through aspects of:

Art and Design: using the mathematical ideas of ratio and proportion to look at similarity and scale. This includes work on building prototypes of models and designs, e.g. STEM projects. Children begin to understand how to use estimates and measurements in planning for construction tasks. They explore ideas about pattern, shape and its transformation, e.g. the tessellations of Escher.

Computing: use of online and in school resources to learn maths (e.g. Complete Maths Tutor) and apply maths (e.g. Excel or programming)

Humanities: make links to work on coordinates and measures. The handling data cycle; state problem, identify and collect data, analyse and represent data and interpret results relates directly to work in Geography, e.g. measuring rainfall. Use of timelines in History, allows consolidation of work on ordering numbers, including the concept of B.C./A.D. times in KS2.

Physical education/Outdoor learning: builds on ideas of pattern, movement and symmetry developed in mathematics. This develops children's awareness of time, distance and speed and can be represented using statistics. Consideration is given to how map references, compass bearings and estimates of distances travelled are developed.

Science: Science can provide a wonderful opportunity to practise a variety of Maths skills within an engaging context. Children are expected to learn to measure length, weight and capacity using appropriate equipment. Children are encouraged to develop the use of measures to record data, including the use of sensors, data loggers and other devices. In addition, aspects of Statistics can be developed in Science lessons, including presenting and interpreting discrete and continuous data, e.g. timing the fall of a parachute.

4. Concluding notes

4.1 Consultation

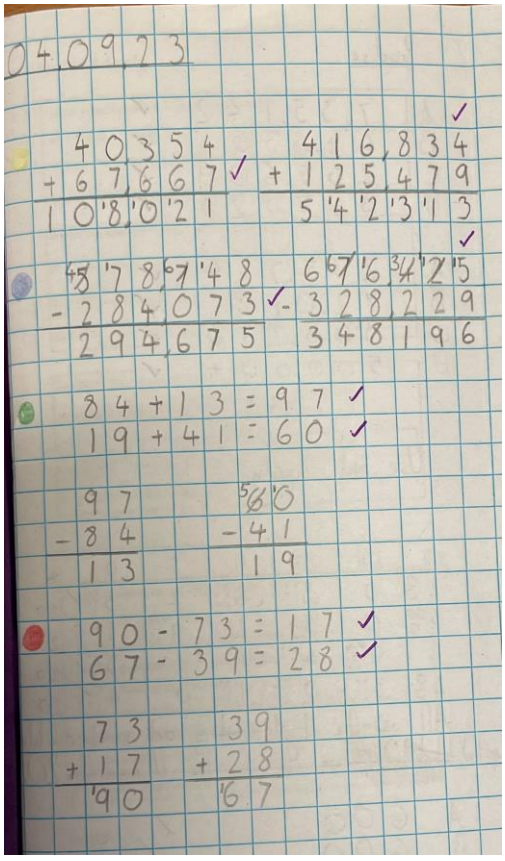
This policy and Maths Curriculum was written by Rebekah Gardner, Maths Lead in consultation with

- Teaching staff and LBG representative
- Governors – Governor Day monitoring visit

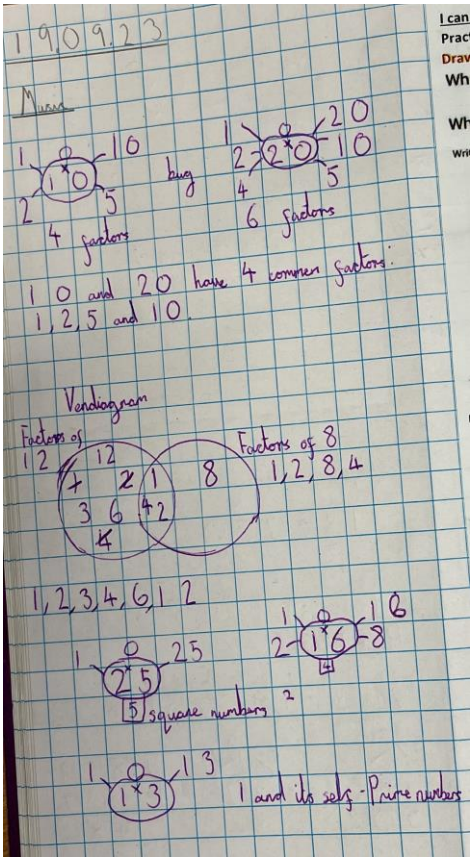
4.2 Monitoring and review

This policy will be monitored and review by the subject leader responsible for Maths.

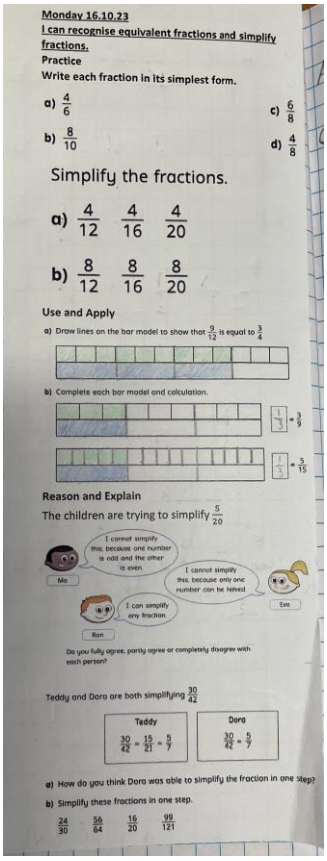
Appendix Maths Books



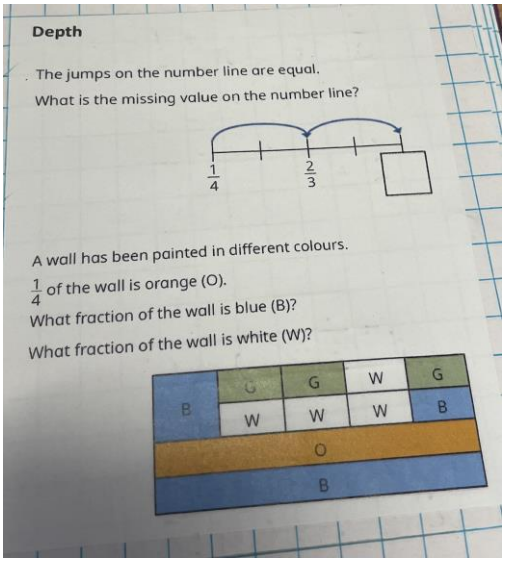
Daily Retrieval Grid



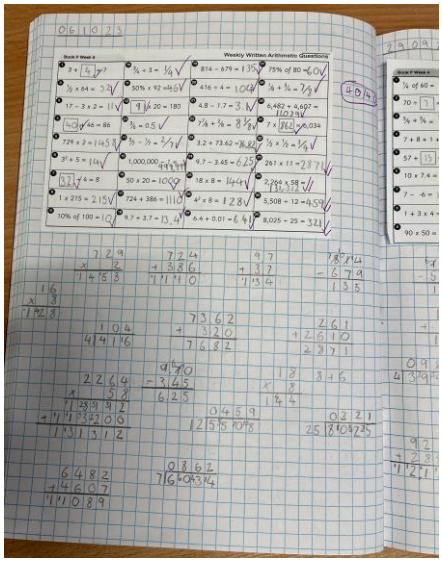
I do / We do / You do



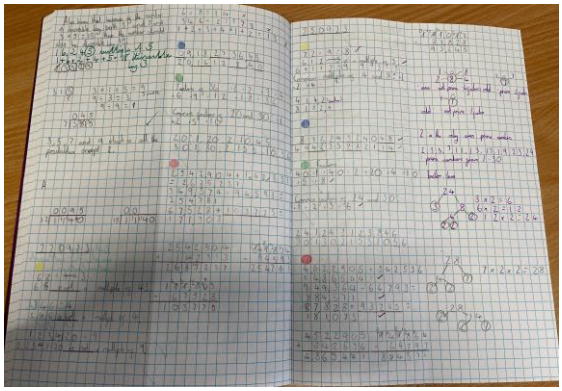
Task strip



Depth tasks



Weekly arithmetic test with jottings



Jottings – Show me/Prove it - Live marking

"Championing every child ***to be the best that they can be****"*

Responsibility Excellence Spirituality Perseverance Energy Caring Tolerance