



Grove Vale Primary School

Maths Policy

Date: November 2022

Review: November 2024

Written by: J. Ahearn



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Rationale

At Grove Vale we aim to inspire all children to reach their full academic potential. In mathematics this means ensuring an ambitious curriculum that is fully inclusive of all children which:

- ✓ Ensures children at Grove Vale are emerged in a rich and high-quality math curriculum, enabling freedom to be **creative**.
- ✓ Gives children the chance to develop the power of **resilience** by believing in themselves when being faced with mathematical challenges.
- ✓ Encourages children have opportunities to be **curious**, making connections between mathematical processes and the world around them.
- ✓ Develops children as independent learners, having self-drive to be **ambitious** by being a part of progressing and challenging themselves and not being afraid to take risks.
- ✓ Makes sure fluency, problem solving and reasoning is developed sequentially to ensure children have a strong foundation to build upon and can recall facts quicker.

This policy is set within the context of the school's needs, vision, aims and policy on teaching and learning. As a result of their learning in mathematics and problem solving across the curriculum children will:

- ✓ Show quick recall of mathematical facts and procedures.
- ✓ Be engaged in a risk-free math learning environment where
- ✓ Confidently and flexibly use, embed and link mathematical skills and processes across a range of contexts and representations, including real life situations.
- ✓ See the curriculum drivers are strongly evident within the math provision.
- ✓ Take an ambitious responsibility of their own learning, with evidence of independent self-driven learning and challenge.
- ✓ Have access to high quality and rich provision for fluency, problem solving and reasoning with mathematical vocabulary rooted in this.
- ✓ Ultimately children will have a deep, long-term, secure and adaptable understanding of mathematics.

Teaching for Mastery

At Grove Vale, we follow a Mastery approach which is personalised to the core values of our school. As per the NCETM, mastering maths means pupils acquiring a **deep, long-term, secure and adaptable understanding of the subject**. The phrase 'teaching for mastery' describes the elements of classroom practice and school organisation that combine to give pupils the best chances of mastering maths which is outlined in this policy.



Long Term

- Long term overviews map the content from EYFS to Year 6 and are designed to give sufficient time for in depth coverage of the year groups National Curriculum Programme of Study (2014) and considering the non-statutory Mathematic Guidance: KS1 and 2 (2020).
- Time is given for topics to provide small steps to learning and effective sequencing while also allowing daily/ regular application through fluency, problem solving and reasoning. There is a clear emphasis on securing number to provide a strong foundation to layer skills on top.
- The calculation policy maps how the teaching of mental and written calculation strategies of the four operations progress from EYFS to Year 6 alongside the curriculum expectations.
- Mental math provision (including times tables) has been mapped to be progressive year on year and in line with the national curriculum and the most recent government guidance and initiatives through the NCETM.
- The NCETM progression of skills documents has been adapted and amended to include EYFS (incorporating the updated Statutory framework for the early years foundation stage - 2021). This document enables each year group to identify how each mathematical skill is sequenced and layered upon from EYFS to year 6. This is used to ensure children have the skills to be successful in their current year groups content, while also assisting in identifying and targeting gaps to learning and how to bridge them.
- We do not follow a specific scheme but have adapted many elements of the White Rose scheme as well as the NCETM Prioritisation documents and have used the DfE Primary Mathematics Guidance 2020 to help prioritise the most crucial skills.

Medium Term

- Medium Term plans are created and provided by the Maths Lead prior to each term which, inline with the long term overview, splitting the topics into small steps, layered in a logical sequence.
- These steps are adapted by the class teacher where needed to meet the needs of the class as a result of pre-assessment. While it is intended content is taught within the time period given to ensure coverage, understanding of number is an essential and may therefore be extended depending on formative assessment of the class teacher. If it is anticipated that this may not happen for any reason, the class teacher will discuss with the maths lead to ensure a balance of understanding, depth and coverage.
- Medium term plans are amended by the class teacher as a working document to incorporate pre-assessments and detail how SEN/ prior lower attainers are being catered for as well as planning sufficient challenge for greater depth/ rapid graspers.
- While mental maths is threaded through the curriculum, the medium-term plans outline expectations for additional mental math provision including development of number facts and multiplication tables.



Medium Term Journey

Assessment

At the end of each topic a post assessment is completed to assist with termly assessment, this marks the end of the learning journey/ topic.

Each term, an arithmetic and Problem solving/ reasoning test will be completed to become familiarised with applying understanding through test-based questions and conditions, this will also inform assessment/ gap analysis by the class teacher.

Mental math and times tables test completed each half term to inform assessment.

Summative assessments are done through Insight termly to indicate progress and attainment for maths and times tables. EYFS will complete a statutory summative assessment for the Early Learning Goals in the Summer Term (EYFSP) as well as a baseline assessment in the autumn term.

CPA Approach

(Concrete, Pictorial, Abstract)

Before a topic, teaching staff will consider which resources may be needed and how they are going to be used to expose the structure of the concepts they will be learning. This will progress from use of practical objects to pictorial representations with the intended outcome for children to eventually be able to complete a variation of abstract tasks without the need for additional aids to scaffold this.

Mathematical Talk

(Vocabulary, Sentence Stems and Questioning)

Examples of mathematical questioning and sentence stems are provided as prompts on the medium-term plan to support during short term lesson planning. Class teachers are also provided with further vocabulary guidance on the medium-term plan to support their planning.

Small Steps – Varied Representation

Medium term plans sequence curriculum content into smaller manageable steps to enable coherence and depth. These are divided into weeks and sessions. Each session has examples of varied representation of that particular small step to support short term lesson planning.

This will include what it is, what it isn't and what it is also.

Layering of Skills

(Logical Sequence)

Topic coverage have been carefully planned to enable sufficient time to go into depth and master skills. Topics are layered in a logical sequence across the term/ year/ school which enable opportunities to make links and apply skills learned across topics.

Problem Solving and Reasoning

Problem Solving and reasoning is developed for all prior attainers regularly and is a part of daily provision. Each small step on the medium term has examples given to support short term planning so children can apply their understanding in a variation of ways. Class teachers are provided with additional resources to support challenge of rapid graspers.

Starting Points

(Age Related Expectations, Lowest 20%, Special Educational Needs (SEN), Greater Depth)

Pre-assessments are used by the class teacher to assess who the lowest 20% are and thus plan relevant support or scaffold to enable them access the current year groups content. Where necessary, intervention and pre-teaching are used as tools to help bridge fundamental gaps in learning. The starting points of prior higher attainers or children working at greater depth are assessed and used to plan and target challenge efficiently. Where an SEN child is working significantly behind, and can not access current year groups content, alternative provision is planned and noted by the class teacher in the medium term plan according to individual targets and starting points.

Pre-Assessment

Pre-assessments mark the beginning of a topic learning journey and are completed well in advance of the topic. This is to ensure children are ready to progress to the current year groups content by retrieving prior learning while also using the Maths Guidance (DfE, 2020) to check children have the core skills needed to build upon. Where children are not ready to progress, medium term planning is amended by the class teacher to address this through intervention, pre teaching, scaffold or support to access the current year group content.



Short Term

- Weekly maths sessions are planned and assessed using the school planning format inline with the Marking and Feedback policy. If children don't grasp a concept in a lesson, same day intervention is applied where possible, or through DIRT (directed independent reflection time) before the next lesson. If more than 20% of children do not understand a concept then it will be re-taught whole class or to a group as necessary.
- Each week include four x 1-hour maths sessions in Key Stage 2, two sessions building to three in year 1, 3 building to 4 in year 2. This forms the maths learning journey and is evidenced in their maths books.
- As well as the standard learning journey, children receive an extra 2 hours of mental math provision each week (5-10 minutes daily focused on mental recall through fluency in 5, 30 min weekly times tables taught session - KS2/ 15-20 minutes daily Mastering Number sessions - KS1, Quick Maths session focused on mental math strategies on a Friday). Daily fluency in 5 and half termly mental math and times table assessments are evidenced in children's mental math books.
- Task provision follows intelligent practice which enables a whole class approach (this includes flexible seating) and enables all children to progress at their own rate rather than being capped or predetermined by an 'ability group.' Formative assessment is used to ensure rapid graspers and/ or children working at greater depth are given the opportunity to apply their learning in a range of ways through a string of pre-planned progressive tasks. Similarly, prior Lower attainers and/ or children who struggle to grasp a concept initially are planned for and relevant support and scaffold are prepared. As discussed previously, Where an SEN child is working significantly behind, and can not access current year groups content, alternative provision is planned and noted by the class teacher in the medium term and short term planning according to starting points and demonstrate how targets are being met.
- Mental maths sessions in EYFS, Year 1 and Year 2 follow the NCETM Mastering Number Programme as well as additional times table development in KS1. In KS2, 30 minutes minimum per week is dedicated to the additional teaching of times tables (as per whole school overview) while a further hour on a Friday is dedicated to Quick Maths sessions focused on mental maths strategies (including mental calculation strategies) to promote confidence and efficiency (this is also done in KS1 rounding up their mastering number learning for that week).
- Times tables are rewarded each half term through certificates and badges when they reach certain milestones.





Short Term Journey

Challenge Application through more complex and varied fluency, problem solving and reasoning.				
↑	<p style="text-align: center;">Intelligent Practice</p> <p>Task provision enables most if not all children to access year group content and progress at their own rate and are not capped by a predetermined 'group.' All abilities have the opportunity to apply skills through a balance of fluency (pictorial and abstract), problem solving and reasoning.</p>			
↑	<p style="text-align: center;">Non-Concept</p> <p style="text-align: center;">Conceptual Variation - What it isn't.</p>			
↑	<p style="text-align: center;">Non-Standard</p> <p style="text-align: center;">Conceptual Variation - What it is also.</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p>Standard</p> <p>$4 + 5 = ?$</p> </div> <div style="text-align: center;"> <p>Non-standard</p> <p>$? = 4 + 5$</p> </div> <div style="text-align: center;"> <p>Non-standard</p> <p>$4 + 5 = 3 + ?$</p> </div> </div>	<p>CPA (Concrete, Pictorial, Abstract)</p> <p>Use of resources and pictorial representations to unpick the concept being taught.</p>	<p>Varied Representation</p> <p>Seeing and applying their learning in a range of ways.</p>	<p>Whole Class and Flexible Seating</p> <p>Support and scaffold so prior lower attainers can access year group content.</p>
↑	<p style="text-align: center;">Standard/ Sentence Stems</p> <p>Conceptual Variation – Learning what it is through CPA. This will include use of sentence stems/ mathematical vocabulary. Class teachers will consider how Prior Lower attainers will be supported through use of scaffold, resources or use of adult support to access year group curriculum content.</p>			
↑	<p style="text-align: center;">Anchor Tasks</p> <p>An anchor task is a problem given to students at the beginning of a math lesson that provides an opportunity to activate prior knowledge, requires students to collaborate and ask questions to each other, and promotes an environment for students to productively struggle and persevere in problem-solving. This also enables all abilities to access problem solving and reasoning daily.</p>			
↑	<p style="text-align: center;">Fluency in 5 and Retrieval</p> <p>Daily, children receive 5-minute recall of number (mental and / or written) to promote quick recall of facts. In books for year 1 and 2, in mental maths books for KS2. Each lesson begins with a retrieval of a previously taught skill.</p>			



Intelligent Practice (Task Provision)

↑	Challenge (Be Resilient)	Progressive
	Problem Solving and Reasoning (Be Ambitious)	
	Fluency (Be Creative) (Abstract/ Variation)	
	Fluency (Be Curious) (Pictorial/ Sentence Stem)	

Learning Environment

All year groups to have a maths working wall which changes to reflect the current topic of learning and includes key vocabulary, diagrams and or resources related to current learning. Year group specific/ phase calculation policy should be displayed. See below for wider provision expectations to be displayed all year round:

EYFS	Year 1	Year 2	KS2
<ul style="list-style-type: none"> • Large numbers to 20 (numbers and words) • Numbers to order on a washing line • Number line/ track • 1 more 1 less • Days of the week • Months of the year • 2D and 3D shapes (name examples of real life) 	<ul style="list-style-type: none"> • Numbers 0- 20 • Number line • 100 Square • Numbers in 10s, 2s and 5s. • Odds and evens • Number bonds • Doubles • Vocabulary for addition, subtraction, equals • Money • Days of the week • Months of the year • 2D and 3D shapes • Teaching clock (if possible) 	<ul style="list-style-type: none"> • Number line • 100 Square • Numbers in 10s, 2s and 5s. (Time tables) • Odds and evens • Number bonds (addition and subtraction facts) • Doubles • Vocabulary for addition, subtraction, multiplication and equals • Money • Months of the year • 2D and 3D shapes • Teaching clock (if possible) 	<ul style="list-style-type: none"> • Multiplication Square and/ or Times tables • Maths vocabulary for addition, subtraction, addition, subtraction and equals • Roman numerals (Year 4 – 6) • Negative numbers (Year 4 – 6) • Months of the year (Year 3 and 4) • Days of the week (Year 3 and 4) • 2D and 3D shapes • Teaching clock (if possible)



Year 2 – 6 will have a times tables display linked to whole school overview and how times tables are rewarded. Children’s names are laminated and reflect their progress throughout the milestone ladders.



Recording

Only pencil to be used with the exception of purple pen to self-correct errors or misconceptions. Use of A4/ large sheets prohibited. Children must always where possible, be encouraged to use the squares in their book to record work. One number to be placed per box, rulers used for lines, Kinetic handwriting policy applies when providing written responses in their books.

EIFS	Year 1	Year 2	Year 3 – 6
Any evidence of adult led maths to be collated in Teacher Time Books. Worksheets need to be dated and LO written above work in child friendly language. Use of photos to evidence children learning if app	Children to begin to use A4 large square book. All work must have a short date and a SC grid to accompany each piece of work.	Children to use A4 squared books. Children must write the short date and a SC grid to accompany each piece of work. Begin to introduce folding page for margins.	Children to have A4 Squared books. Year 3 begin to use margins (Half of page) progress to double margin throughout the year. Single margin used when necessary. Children to write short date and a SC grid to accompany each piece of work. Mental maths books – short date. Each week divide a page into 4 for fluency in 5. Half termly mental math and times table assessment. Any other relevant mental math evidence.



Equal Opportunities

At Grove Vale Primary School mathematics is incorporated into a wide range of cross curricular subjects e.g. shapes in Art, roman numerals in History and class teachers seek to take advantage of multicultural aspects of mathematics e.g. Islamic patterns in R.E.

All children have equal access to the curriculum regardless of gender, race, ethnicity, ability or anything else. This is monitored by analysing pupils' performance throughout the school to ensure that there is no disparity between groups.

Parent Contact and Homework

We recognise that parents make a significant difference to children's progress in Maths and encourage this partnership. At Grove Vale Primary School, we encourage parents to be involved by:

- ✓ Inviting them into school three times yearly to discuss the progress of their child
- ✓ Inviting parents into school in the summer term to discuss the annual report
- ✓ Inviting parents of Year 2 and Year 6 to a meeting in the autumn term to advise them how they can support their children with SATs
- ✓ Inviting Year 4 parents to a meeting in the spring term to discuss and advise them further on the multiplication tables check.
- ✓ Letter sent out to parents advising expectations regarding timetables.
- ✓ Holding workshops or showcases for parents
- ✓ Effort reports sent out at the end of autumn and spring term to demonstrate progress and attainment.
- ✓ Yearly more detailed reports, this involves a comprehensive written comment about the child's progress and attainment in maths as well as indicators of how well they are accessing their year groups curriculum.

Homework should be sent out weekly to consolidate learning taken place that week. This should be challenging but also considering the fact parents may not be confident in supporting children at home with maths. This is supported through the use of mathletics in key stage 2 and maths.co.uk in Key Stage 1.

Timetable Rockstars is used regularly to consolidate and practise timetables, each child has their own log in, and this is part of the weekly homework expectation.