



Griffin Primary School

Maths Policy



1	Summary	Maths Policy			
2	Responsible person	Kirsty Roantree			
3	Accountable SLT member	Louise Pitts			
4	Applies to	<input checked="" type="checkbox"/> All staff <input type="checkbox"/> Support staff <input type="checkbox"/> Teaching staff			
5	Who has overseen development of this policy	Kirsty Roantree			
6	Who has been consulted and recommended policy for approval	LGB			
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1. Aims and Objectives

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

The National Curriculum for mathematics aims to ensure that all pupils:

- 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
- can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

2. Whole School Curriculum Ambition

At Griffin Primary School, our ambition is to provide a curriculum for all of our students designed in response to what we already know about our children. Our over-arching goal is routed in promoting a positive attitude towards learning so that children enjoy coming to school, developing our children into life-long learners. Our curriculum is designed to provide all of our children with the core knowledge that helps them to make links between their prior and new knowledge, allowing them to develop a deeper understanding and be inspired to continue their learning outside of the classroom.

We aim to provide our children with stability through a consistent curriculum provision, allowing staff to become experts and build in assessment tools. The curriculum is sequenced effectively to enable prior knowledge to be built upon both throughout and across year groups. At the heart of our curriculum there lies a respect for all of the subjects we teach and how this provides our children with an insight into the world around us.

At Griffin we teach children how to develop their behaviours and habits to become effective learners through asking questions in order to develop their curiosity. Griffin's curriculum has been developed so that our children are not afraid to make mistakes and accept ways forward as support rather than criticism.

By the time the children leave Griffin, our ambition is to ensure that they have the necessary skills in Mathematics, English and communication so that they will become positive citizens in their community and the wider world.



3. Maths Curriculum Ambition

Our ambition is to develop the lifelong skills of mathematics needed for our changing, modern world.

- Pupils instantly recall basic arithmetic facts.
- Pupils are proficient with foundational knowledge of skills and vocabulary to access the curriculum and solve a variety of mathematical problems.
- Pupils demonstrate confidence when using a range of representations.
- Pupils apply learning in mathematics to the wider curriculum; and to the wider world beyond school.
- Pupils articulate their learning and knowledge in discussions about mathematics with peers and adults.

4. Maths Curriculum Implementation

Our Maths curriculum is taught daily using a problem-solving approach using Maths No Problem. We prioritise the mastery of basic skills, conceptual maths understanding by using real life/ everyday problems. Children explore and investigate these problems using key vocabulary to support their understanding. Communication is key, as pupils are encouraged to work alongside peers to reason, explain and justify their thinking using mathematical vocabulary and resources.

To support pupils' recall of facts and arithmetic skills, pupils revisit a number of arithmetic questions at the start of every lesson using the Fluent in Five Resources.

Maths No Problem

Maths No Problem Singapore Maths is a mastery approach to teaching which has produced a world class level of achievement for many years. The Department for Education, the National Centre for Excellence in Teaching Mathematics (NCETM), the National Curriculum Review Committee and OFSTED have all emphasised the pedagogy and heuristics developed in Singapore.

The Maths No Problem Primary Series was assessed by the DfE's expert panel, which judged that it alone met the core criteria for a high-quality textbook to support teaching for mastery.

MNP provides training, teaching tools and ongoing support to teachers. The Primary Maths Series textbooks are recommended by the DfE for schools on the mastery programme.

Pupils are given sufficient time to work through the units, as a whole class. The set activities are designed to be accessible by all pupils, whilst still containing challenging components. For advanced learners, the textbooks also contain non-routine questions for pupils to develop their higher-order thinking skills. Lessons and activities are designed to be taught using problem-solving approaches to encourage pupils' higher-level thinking.



The focus is on working with pupils' core competencies, building on what they know to develop their relational understanding. Pupils learn new concepts through the use of concrete examples, such as counters, pictorial representations and more abstract symbols, such as the equals sign. The questions and examples are carefully varied to encourage pupils to think about the maths.

Rather than provide mechanical repetition, the examples are designed to deepen pupils' understanding and reveal misconceptions, whilst giving them opportunities to make links to other areas of the maths curriculum.

The structure of a maths lesson at Griffin follows the following sequence as used in Maths No Problem:

Exploration - All lessons begin with a problem to engage and immerse children in the concept, this allows them to explore for themselves and show what they already know. These are taken from the MNP text book and are stuck in maths exercise books at the start of each lesson. Pupils will write their answers down, show their answers using manipulatives or discuss their ideas with a peer/group or the whole class. A note is made in their maths books to show the way it was answered – pupil responses, S:_____ the resource used or D for discussion.

Master - This part of the lesson is where, as a class, you discuss and model a variety of strategies to solve the problem, teaching the underlying concepts and assessing pupils' understanding before moving them on.

Guided Practice- Once the key concepts of the lesson have been discussed and modelled, the children will apply their knowledge gained from the earlier parts of the session. This is an opportunity for pupils to show their understanding of the concepts and for staff to assess pupils' understanding. If pupils need further support, they are grouped with others who need support and guided by a member of staff/ their peers.

Independent Practice (Workbook) - Children will independently apply their knowledge and complete the tasks set in the MNP workbook. Pupils worked is live marked as often as possible to give instant feedback, support and challenge to pupils.

If pupils are working as a part of a guided group, the aim is for them to use modelling, scaffolding and manipulatives to support them in re-joining the main group and complete the work in the workbook.

Journaling – Once pupils have completed the workbook tasks, they are given a journaling task. These are used to allow pupils to challenge their own understanding and show their knowledge of key concepts alongside other mathematical relationships that have been previously taught.

The Journaling tasks are varied using the 5 main journaling types as identified by MNP:

1. Descriptive Journaling
2. Evaluative Journaling
3. Creative Journaling
4. Investigative Journaling



5. Formative Journaling

If pupils need to revise a concept, due to the identification of gaps in understanding from that lesson or a previous year's lesson, they will continue working on the same concept using manipulatives, further questioning and scaffolds to ensure they grasp the concept and achieve.

Fluent in 5

Fluent in Five provides a daily set of arithmetic practice, designed to help children develop and maintain fluency in both written and mental calculations. The structure of Fluent in Five is also designed to help children distinguish between written and mental calculations.

Regular practice of mental and written arithmetic skills is important in order to keep calculation skills fresh. This is especially important as our curriculum is structured with longer blocks spent on each topic area with the skills being revised in other topic areas instead of revisiting as independent blocks. We have noticed there are significant time pressures with the KS2 arithmetic tests; many children are not able to complete the full test in the 30 minutes given. This is often because children are attempting questions which have been designed to be answered mentally using an informal or formal written method, which takes up valuable time. This may be because children are not confident with mental approaches to calculations, or that they are simply 'tricked' by the appearance of a gridded working area after each question.

Fluent in Five has been designed to provide this regular practice and help children distinguish between when to use a written method and when a mental method would be more efficient. In turn, this should develop their ability to complete all the questions in an arithmetic test in the time given.

Mastering Number

Mastering Number was developed by the National Centre for Excellence in the Teaching of Mathematics (NCETM) and the Maths Hubs Network. It aims to develop solid number sense, including fluency and flexibility with number facts, which will have a lasting impact on future learning for all children. It also involves high quality professional development for teachers.

Teachers in Reception and KS1 deliver a daily session of 10 to 15 minutes in addition to their daily maths lesson. Resources, including lesson plans, visual resources and practical equipment, are provided by the NCETM. Central to the programme is a small, abacus-like piece of equipment called a rekenrek, which are used by children in participating classes. The small steps and detailed variation support pupils in developing their understanding of numbers and their composition. Along with the use of key mathematical vocabulary, sentence stems and effective questioning, pupils are able to articulate and deepen their understanding.



Greater Depth

Children showing a greater depth understanding of Maths, have their needs addressed through challenges as part of Maths No Problem. All children are given opportunities for journaling activities and the development of mental strategies to allow them to use mathematical relationships when answering the tasks. Pupils are encouraged to show their answers and understanding in a range of ways, including the use of concrete resources and pictorial representations.

SEND

When pupils are working 2 or more years below their peers, the child may have special educational needs. Factors such as classroom organisation, teaching styles and scaffolding are considered so that action may be taken to assist the child in learning more effectively. Lessons are planned to ensure that all children make progress from their individual starting points. Progress is measured against end of year expectations to help ensure that teaching is matched to the child's need.

We enable all children to have access to the full range of activities involved in the teaching and learning of maths.

When pupils are working significantly below their peers, we assess their understanding using the pre-key stage Standards documents. These show where pupils need to go next in their mathematical journey to narrow the gap between themselves and their peers. Pupils will work on content from previous year groups, using Maths No Problem lessons and workbooks.

EYFS

Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically. Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers.

By providing frequent and varied opportunities to build and apply this understanding - such as using manipulatives, including small pebbles and tens frames for organising counting - children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built.

In addition, it is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics. It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes.

At Griffin Primary School children are supported in developing their understanding of Maths in a broad range of contexts in which they can explore, enjoy, learn, practise and talk about their developing understanding. Children take part in daily maths lessons that are 20 minutes long, where maths skills are explicitly taught.



They are then provided with opportunities to practise and extend their skills in these areas to gain confidence and competence in their use, within continuous provision. Opportunities are provided both indoors and outdoors meeting the children's needs for all types of play which build upon first-hand experience for all children.

5. Maths Curriculum Impact

- Outcomes of pupils in each year group, majority of pupils achieve their end of year outcome, based on their starting points.
- Pupils become aware of the world around them, finding out why things are as they are and becoming curious to find out even more.
- Develop a love of learning to take superficial knowledge into deeper knowledge and understanding of the world around us.
- Develop aspirations for future engineers (Science/Maths/Technology) using STEM, provide opportunities for STEM sessions and bring in STEM Ambassadors from local employers to raise the profile of careers within these areas

6. Assessment

Assessment of Maths is ongoing. It is continuously used to inform teaching. Marking and questioning during lessons enable teachers to make assessments.

Misconceptions are addressed as they arise, and teachers actively engage children in proving their ideas.

Teachers continually assess pupils on the concepts taught and use this to inform their planning and assessments regarding interventions and next steps for progress and mastery.

Pupils complete an end of unit review in their Maths No Problem books at the end of every unit of work. The pupils' scores are then recorded at the front of their MNP workbooks and any areas for interventions are identified.

All pupils from Y1-6 complete a mid-year and end of year assessment using Maths No Problem Assessments. These are used alongside the end of unit reviews to support teacher assessments of pupils against the end of year outcomes.

Working walls are in all classrooms and are updated frequently to reflect the current learning. These are to identify the unit being studied and should include key vocabulary and sentence stems alongside examples of appropriate calculations and strategies. Working walls should be referred to in lesson and pupils should use them to aid learning.

7. Curriculum Planning

Maths is a core subject within the National Curriculum and as such is timetabled to be delivered to all pupils on a daily basis for a minimum of one hour in Years 1 to 6 and for 20minutes in EYFS. The programmes of study for Maths are set out in year objectives, which are split into units of work and sequenced progressively through the years and key stages.



The long-term plan maps out the units to be studied during each half term in each year group.

The medium-term plans provide the unit of work, National Curriculum links, Key vocabulary and resources that are recommended to be used for the unit of work being taught. The medium-term planning is sequenced into unit specific weeks to ensure pupils complete the LTP between September and July. The medium-term plans also identify the assessment weeks so staff are aware when the assessments will be taking place in relation to the units that have been covered.

Short-term planning, is written by the teachers. In Years 1 to 6, it is taken from Maths No Problem Online and gives the Learning Intention, Lesson Overview, Sticky Knowledge (What must be remembered from the lesson), Remember when (where this lesson links in relation to previous learning, this supports the plugging of gaps and addressing of misconceptions) and Key Vocabulary.

8. Resources

There are sufficient resources within school for the delivery of an effective maths curriculum. Resources are stored in a secure area of the school building. Where further resources are required, it is the responsibility of the class teacher to request them from the subject leader. The subject leader will then try to fulfil the request.

9. Role of the Subject Leader

It is the responsibility of the subject leader to write the LTP and schemes of work for each Maths unit. The subject leader will also monitor the standards of children's work and the quality of teaching and learning in Maths. Monitoring may involve looking at planning, scrutinising work, lesson observations and pupil voice. Pupil voice is valued and helps to inform the vision and aims of Maths across the school, pupils are interviewed to gain an insight into the subject. It is the subject leads responsibility to ensure staff maintain a high quality of presentation in pupil's Maths books.

The subject leader produces an annual action plan for the development of Maths and also reviews impact termly; identifies next steps and any CPD needs. This working document is shared with Governors annually. The subject leader will also produce and narrate a presentation about their subject for the Governors bi-annually.

The subject lead ensures resources are available for units to be taught and will provide support if/ when needed for staff.

This policy will be reviewed every two years.