



Maths Policy

Agreed at (please indicate with a *):

- Full Governing Body Meeting _____
- Children and Learning Committee Meeting _____*
- Resources Committee Meeting _____

Date: 8.3.24

“The enchanting charms of this sublime science, mathematics, reveal only to those who have the courage to go deeply into it.”

Carl Frederick Gauss

1. Vision

It is our vision that our children will:

- See themselves as mathematicians, enjoying the challenges of a rich subject, wanting to know more and understand more.
- Develop a deep understanding of skills and concepts and use these accurately.
- Be fluent and agile in accurately applying their skills to solve mathematical problems.
- Relish investigations. They apply concepts they know, seek out patterns, think abstractly, work systematically, are flexible and creative in their strategies, and are persistent in solving challenging problems.
- Be well-prepared for their future learning through strong foundations and deep mathematical understanding. In addition, they are well-equipped with life skills such as analysis, problem solving and reasoning.

2. Our mathematics curriculum is brought to life through our seven commitments:

HAPPINESS

Our rich and exciting curriculum allows the children to have the confidence to enjoy maths. During lessons, all children are expected and encouraged to get involved and approach their maths learning with a can do attitude. They get this by adopting a growth mindset from an early age. Understanding that mistakes are part of the learning journey and that making mistakes and learning from these makes us better learners; better mathematicians. As such, the children feel positive about maths as the learning environment and everybody in it has a positive growth mindset.

INSPIRING

Through our engaging curriculum, we aim to inspire our children to see the beauty of maths. The way that maths is interconnected through all areas of everyday life, enriching the conversations that all adults should be having with children to make relevant how mathematicians have made and still do make a difference in the world. Through allowing the children to experience a range of different mathematical problems, they will have the confidence to tackle these whilst developing their ability to choose and apply specific strategies in order to approach and solve problems.

LEARNING

Our curriculum has been designed to be progressive so that it builds upon and develops children's skills and knowledge so that it can be applied in a variety of different situations. This will be accessed through the use of the maths mastery approach, which seeks to develop a deep understanding of maths where a child can use their knowledge of a concept to solve unfamiliar word problems and undertake complex reasoning, using precise mathematical vocabulary. Our maths offer consists of discrete arithmetic *teaching* sessions as well as arithmetic *practise* sessions, alongside daily maths lessons that take the whole group of children on a particular learning journey together. Once per week, there will be dedicated problem solving session with a whole school focus on a particular problem-solving strategy. Before school each day, every child has the opportunity to be immersed in maths by taking part in our 'Early Bird' maths sessions, where children practise retrieval of key concepts and knowledge from learning that has taken place previously. Daily maths lessons will introduce children to new concepts using small steps, which build upon one another, making links and 'sniffing out patterns' along the way. Teachers will use 'Fathoms' as a vehicle for deepening the children's knowledge and understanding. These

Fathoms should allow for both practise and problem solving at every stage, built in to the structure of the maths lesson so everyone has access to everything they need. Teachers use Times Tables Rock Stars and My Maths as tools to support the learning at school through home learning. They aim to broadly match home learning tasks to content being taught in maths lessons and, in the case of TTRS, are targeted according to the needs of the children.

TOGETHERNESS

The maths mastery approach enables all pupils to go on the journey of maths mastery together. Using an 'I do, we do, you do' teaching strategy enables children to use teacher modelling in order to practise maths concepts with the support of their classmates. The children value each other's contributions because they are all working on the same thing at the same time. Nobody is left behind because the children understand that everyone sees concepts in different ways and this helps each and every child to further develop their understanding.

VALUES

Our school's twenty two values all play an important role in maths learning. Part of being a mathematician requires all learners to foster the values of resilience, effort, self-belief and patience. Having a growth mindset equips the children to continue working on a problem by approaching it in a different way, when another doesn't work. In this way, children will demonstrate independence when working in maths.

AMBITION

Adopting a growth mindset approach to maths mastery allows the children to see themselves as mathematicians. We want the children to strive to be successful and as a result, lessons are planned in a way that gives the children confidence. Where gaps in a child's learning arise, timely interventions allow children to keep up, not catch up. As a school, we are ambitious for our teachers and teaching assistants by investing in their Continuing Professional Development. Providing effective, regular CPD for our staff will ensure that there is a consistent approach to teaching and supporting our children with their maths learning.

ACHIEVEMENT

In order to be successful in all maths lessons, the children will receive immediate feedback through live marking. This means that all learners get what they need to make progress. We have high expectations for the children's achievements and as such strive for the number of our children to achieve the expected standard to be above Surrey and National data at the end of Key Stage 1 and 2. It is the expectation that all children are fluent with their times tables facts by the end of Year 4, so that they are well prepared for Year 5 and Year 6.

3. By the end of Year Six at Stamford Green Primary School and Nursery our children will:

| | |
|-------------------|---|
| Behaviours | Our children will demonstrate positive behaviours during maths lessons. They will feel confident to support or challenge each other when discussing or using mathematical concepts as well as be able to choose from a range of strategies to help them approach a maths problem. |
| Attitudes | Through our progressive curriculum which promotes a growth mindset approach to learning, children will show a positive attitude towards their maths learning. They will develop their values of resilience and self-belief when understanding that making mistakes is part of the learning process. Children will support the thinking that maths isn't always about finding 'the correct answer', but about how they arrived at that answer and understanding why it is correct. |
| Skills | Our detailed curriculum, with learning broken down into small steps, will allow children to add, subtract, multiply and divide. They will be confident and fluent in their recall of number facts including times tables. Through effective modelling of precise mathematical vocabulary by the teacher, children will be able to articulate succinct reasoning as well as demonstrate effective recording methods which show working out. Discretely taught problem solving lessons will directly teach specific problem solving strategies which will equip |

| | |
|--------------------|---|
| | our children to choose the most efficient method in their learning beyond Key Stage 2. |
| Knowledge | Our carefully considered sequence of learning will make explicit links to previous learning, allowing for retrieval practise as well as the opportunity to notice how concepts build on those they have learned before. The children will use the correct mathematical vocabulary when explaining their reasoning, as modelled by the teacher. Children will be expected to 'say it again better' or use sentence stems to frame their reasoning, incorporating this precise mathematical language used correctly. |
| Experiences | We aim to give the children a wide range of experiences which allow them to explore and investigate mathematics. They will use specifically chosen manipulatives and visual representations in order to scaffold the rich discussion around the mathematical concepts they are modelling. The children will be able to experience the awe and wonder maths can provide through open ended problems to solve. Events planned to promote the learning and fluency of times tables facts will raise the profile of maths and motivate the children to develop automaticity in this skill. |
| Technology | We use technology as a tool to provide instant feedback about the children's learning. At home, online tasks are set by the class teachers in order to practise the learning that is happening in school. We prepare our Year 4 children for the Multiplication Tables Check by providing regular practice using simulation software so the children are familiar with the style and layout of the test before they complete the actual check in June. We use a wide range of manipulatives to support the children's mathematical learning, including digital manipulatives where appropriate. |
| Sustained | It is our aim that the children leave Stamford Green with a sustained interest in mathematics, having embedded basic mathematical concepts during their time with us. We want the children to transfer to secondary school with the same positive attitude fostered throughout their time at Stamford Green because we feel it's vital that they continue to see themselves as mathematicians. With all of this in place, we believe the children will be equipped with the best possible foundations in mathematics which will help them in their future life choices and careers. |

4. Feedback and Assessment

- a) For further information about how the school provides feedback to the children and how teachers make assessments about a child's learning, please refer to the Assessment (including marking and feedback) Policy.

5. Inclusion

- a) Learning opportunities will be available to every child, regardless of any protected characteristic. Pupils will be encouraged to value social and cultural diversity through their learning. They will listen to, and participate, in a variety of experiences in a positive and constructive manner.
- b) We recognise that in all classes, children have a wide range of abilities. Therefore, we aim to provide suitable learning opportunities for all children by matching the challenge of the learning to the needs of the child.
- c) For further information, please refer to our Special Educational Needs and Disabilities (SEND) policy and our Teaching and Learning Policy.

6. Subject Organisation

- a) For all year groups, the Maths Compendium has been written detailing the curriculum objectives that should be taught for each year group (including arithmetic and problem solving).
- b) All year groups have a set of expectations in the Maths Compendium, which children should be able to achieve by the end of that year. Teachers use these expectations as a basis for their planning, to ensure that the lessons are suitably pitched with an appropriate level of challenge to enable children to meet the expected standard at the end of the year. Teachers use a 'Mastery approach' to allow children to deepen their understanding, supported by an ethos where challenge is celebrated and mistakes are seen as learning opportunities.
- c) In the spring or summer term of Nursery, (depending on need), children are beginning to have discrete, age appropriate maths sessions. In Nursery, maths learning is focussed around three main areas – Counting and comparing, Exploring number and pattern and Problem solving. For further information, please see the EYFS Compendium.
- d) In Reception, children have daily maths sessions following the EYFS statutory framework. The 3 main areas of focus for maths learning are: Becoming friends with numbers, Parts and wholes and Exploring numbers and patterns. Daily 'Maths Meetings' allow children to develop automaticity with maths facts. For further information about maths learning in Reception, please see the EYFS compendium.
- e) For children in Year 1 - Year 6, children will have four, one hour maths lessons per week. Year groups use and adapt the White Rose Maths scheme of work to plan and teach the required content. For further information regarding the curriculum maps for each year group, please refer to the Maths Compendium.
- f) For the children in Year 2 to Year 6, they will have one, thirty minute problem-solving lesson per week. There is a half-termly whole school focus on specific problem-solving skills which all year groups follow at the same time. Further details can be found in the Maths Compendium.
- g) In all year groups, the importance of learning key number facts is promoted through dedicated arithmetic teaching sessions and arithmetic practise sessions four times a week. In Year 1 and Year 2, the children use 'Fluency Bee' which is a programme made specifically for Key Stage 1 and aims to build fluency and automaticity in the basics of number, in preparation for Year 3. From Year 3 onwards, the children use 'Speedy Maths' as a method of rapid recall and practise of number facts relevant to their year group. Our 'Strategy for securing number facts' document (See Appendix B of this policy) ensures that no child is left behind with regards to certain basic number skills through close monitoring and assessments carried out by Class Teachers and subsequent Pupil Progress Reviews with the Extended Leadership Team.
- h) Showing clear working out is an important skill and therefore we have high expectations of presentation in this regard. Teachers should use a pre-set template for creating maths Fathoms detailed in the Presentation Policy.
- i) Homework for children is set in accordance with the Homework Policy.

7. Monitoring and Evaluation

- a) The work of the maths Subject Leader involves ensuring that the curriculum is well planned, being informed about current developments in this area and providing a strategic lead and direction for the subject in the school.

- b) The maths Subject Leader assists staff by leading training sessions and supporting them in the classroom. The maths leader is responsible for implementing changes required by the National Curriculum, attending training courses feeding back key skills and information to staff. The maths leader ensures that all staff have access to relevant professional development.

- c) The Times Tables Champion leader ensures that our approach to promoting the learning of times tables is progressive and promoted throughout the school. This happens through the implementation of our Strategy for securing number facts as well as whole school events and competitions to raise the profile of learning times tables.

Appendix A - Approach to developing good number formation in the Early Years Foundation Stage and Beyond

As referenced in Appendix A of the English policy, it is much better to teach good habits than to fix poor ones at a later time.

Once children have the pre-grip skills required for writing, pencil grip is taught through:

- Explicit teacher demonstration of nip, flip, grip
- Practice of 'Pencil Pick-ups' to practise forming a good grip without writing.
- Practice of pre-writing/scribbling in correct pencil grip to develop good pencil pressure.
- Correction of poor grip so that habits are not built.

When appropriate, correct number formation will be taught through:

- Explicit teaching using the number formation posters and associated rhymes.
- Practice number formation
- Correction of poor formation through verbal feedback and marking (where appropriate), so that habits are not built.

Expectations

All children should develop good pencil grip habits by the end of Reception and therefore be able to correctly form numbers relevant to their year group expectations.



Assessment

Repetition and practice are key to developing efficient pencil grip. Children from the age of 3 are assessed half-terminally to monitor who is able to:

1. Pick up a pencil with correct pencil grip when asked to by an adult.
2. Use correct pencil grip throughout writing/drawing activities without reminders (i.e. who has a habit of correct pencil grip)

These assessments will inform planning to support children to develop correct pencil grip and therefore accurate number formation as well as be part of handover between Class Teachers to flag those who require additional support in this area.

Appendix B - Approach to securing number facts

Stamford Green Primary School and Nursery's Strategy for securing number facts

Rationale

Having automaticity with number facts makes many other concepts and procedures in maths easier to understand. Fluency with number sense helps to build confidence as well as strong foundations for subsequent learning. As a result, we will make sure every child has the opportunity to achieve this through the small steps listed below.

| End of Year Group Expectations | | |
|--------------------------------|--|---|
| | Key facts: | Ways that this will be taught, practiced and assessed: |
| EYFS | Nursery <ul style="list-style-type: none"> Begin to subitise up to 5 | <ul style="list-style-type: none"> Playing games Singing songs Reading stories Regular practical subitising practice |
| | Reception <ul style="list-style-type: none"> Subitise up to 5 Automatically recall bonds to 5 (both + and -) | <ul style="list-style-type: none"> As above plus daily maths meetings 1 minute maths app on iPads Numbots |
| Year 1 | <ul style="list-style-type: none"> Subitise up to 10 Automatically recall bonds to 10 and within 10 Know doubles (to 10) and halves (of 20) of even numbers | <ul style="list-style-type: none"> Daily arithmetic teaching using WRM's 'Fluency bee' 1 minute maths app on iPads Numbots |
| Year 2 | <ul style="list-style-type: none"> Automatically recall bonds to 20 and within 20 Know pairs of tens to 100 Know doubles and halves of all numbers to 20 (including odd numbers) Know 2x, 5x and 10x tables facts and corresponding division facts at speed. | <ul style="list-style-type: none"> Daily arithmetic teaching using WRM's 'Fluency bee' 1 minute maths app on iPads Numbots Explicit teaching of the 2, 5 and 10 times tables in arithmetic and maths lessons using a range of strategies. Regular TTRS practice and certificates |
| Year 3 | <ul style="list-style-type: none"> Know pairs of numbers to 100 Know 3x, 4x and 8x tables facts and corresponding division facts at speed. | <ul style="list-style-type: none"> 1 minute maths app on iPads Explicit teaching of the 3, 4 and 8 times tables in arithmetic and maths lessons using a range of strategies. Regular TTRS practice and certificates |
| Year 4 | <ul style="list-style-type: none"> Know facts all times tables up to 12x12 and corresponding division facts at speed. | <ul style="list-style-type: none"> 1 minute maths app on iPads Explicit teaching of the 6, 7 and 9 and 12 times tables in arithmetic and maths lessons using a range of strategies. Regular TTRS practice and certificates |
| Year 5 and 6 | <ul style="list-style-type: none"> Know facts all times tables up to 12x12 and corresponding division facts at speed. Use known facts for all times tables to facilitate use of the formal written method for multiplication and division when solving problems. | <ul style="list-style-type: none"> 1 minute maths app on iPads Explicit reference to relevant times tables in arithmetic and maths lessons. Regular TTRS practice and certificates |

| Half termly Assessments | | | | | | | | |
|-------------------------|--|---|---|---|---|---|--|---|
| | Nursery | Reception | Year 1 (FB) | Year 2 (FB) | Year 3 | Year 4 | Year 5 | Year 6 |
| Autumn 1 | Recognise and recite number names to 5 | Name numbers in order to 10 and compare two numbers saying which is more/less | Subitise to 5 | Bonds to 10 and within 10 | 10 more/less than 3-digit numbers. Know x facts for the 3x and 4x tables. | Know x and ÷ facts for 3x, 4x and 8x tables | Know x and ÷ facts for all tables up to 12x12. | Know x and ÷ facts for all tables up to 12x12. |
| Autumn 2 | Recite number names in order to 5. Touch count to 5. | Subitise to 5. | Bonds to 5 | Doubles to 10 and halves of 20 (even numbers only) | Add two multiples of 10. Know x facts for the 3x, 4x and 8x tables. | Count in 9s and 7s. Know x facts for the 9x and 7x tables. | Pairs of hundreds to 1,000. | Identify common factors of a pair of numbers. |
| Spring 1 | Use language before, after, next. | Say 1 more than a number up to 10. | Bonds to 10 and within 10 | Doubles to 10 +10 and halves of up to 20 (including odd numbers) | Subtract pairs of multiples of 10. Know ÷ facts for the 4x and 8x tables. | Count in 6s, 11s and 12s. Know x facts for the 6x, 11x and 12x tables. | Add pence to £ and pence. Know x and ÷ facts for all tables up to 12x12. | Identify prime numbers to 50. Know x and ÷ facts for all tables up to 12x12. |
| Spring 2 | Sort objects and say which group has more/less. Name simple shapes – circle, triangle, square, rectangle. | Partition numbers to 5 into two groups. Know bonds to 5. | Doubles to 10 and halves of 20 (even numbers only) | Bonds to 20 and within 20 | Pairs of numbers to 100. Know ÷ facts for the 3x, 4x and 8x tables. | Count in 7s and 12s. Know x facts for the 6x, 7x, 9x, 11x and 12x tables. | Subtract pence from £ and pence. | Know the decimal and percentage equivalents of the fractions $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$, $\frac{1}{3}$, $\frac{2}{3}$, tenths and fifths. |

| | | | | | | | | |
|-----------------|--|---|--|--|--|--|---|--|
| Summer 1 | Recite number names to 10. | Recall some number bonds of numbers 0-10 including partitioning facts. Know some odd and even numbers to 10. | Bonds to 10 and within 10 | Pairs of tens to 100 2x/5x/10x tables | Multiply any number by 10. Divide multiples of 10 by ten. Pairs of numbers that make 100. | Know ÷ facts for 6x, 7x, 9x, 11x and 12x tables | Revisit previous facts including assessment milestones. | Revisit previous facts including assessment milestones. |
| Summer 2 | Recite number names in order to 10. Begin to subitise up to 5. | Recite number names in order to 20. Recall doubles facts up to 5+5. | Doubles to 10 and halves of 20 (even numbers only) | Division facts for 2x/5x/10x tables | Add/subtract multiples of 10 to/from 3-digit numbers. | Know x and ÷ facts for all tables up to 12x12. | Pairs of tens to 1,000. Revisit previous facts including assessment milestones. | Revisit previous facts including assessment milestones. |

For children in Year R to Year 6, **these milestones** will be assessed formally at the end of every half term and fed back to parents at PCTCs. Objectives that are not in bold are suggested focuses if there are no milestone assessments that half term. These feed into subsequent milestones so are recommended.

Between whole class assessments, teachers should use a 'pinny time' approach to getting all children to keep up with facts. Sets of flashcards can be sent home to practice with parents.

In Nursery, the ability for the children to be beginning to subitise will form a specific part of the handover meeting between Nursery and Reception.

Teaching Guidance Y1 – Y6

All teachers will:

- Use daily routines to practice learning these number facts – for example, when lining up to go home, or leaving the classroom to go to break or lunch. Use a 'pinny time' approach to help children keep up.
- Take advantage of arithmetic lessons for the children to recognise which facts aren't yet 'sticky' and find innovative ways for them to learn and remember these e.g. wearing a sticker that says 'Ask me what 7x8 is'.
- Share the children's TTRS Heatmap both with the children via the inside back cover of the maths books and with parents/carers at PCTCs to show how their speed and accuracy of the relevant times tables is going (at least termly Y2-Y6)
- Find out what motivates the children in their class to help inform their choices of strategy to adopt.

Year 1

- Explicit teaching of strategies to promote automaticity using Fluency Bee.
- Subitise up to 10
- Automatically recall bonds to 10 and within 10
- Know doubles and halves of even numbers to 20

Year 2

- Explicit teaching of the 2, 5 and 10 times tables in arithmetic sessions (via Fluency Bee) and in maths lessons.
- Teachers will use a range of strategies to aid learning of these new facts such as counting in multiples when counting objects or money, or simply chanting the multiples forwards and backwards.
- Spotting patterns and making generalisations such as 'multiples of 10 always end with a zero', 'all multiples of 2 are even so end in 2, 4, 6, 8 or 0', 'multiples of 5 end in a 5 or a 0, so some multiples of 5 are also multiples of 10'.

Year 3

- Explicit teaching of the 3, 4 and 8 times tables in arithmetic and maths lessons. Teachers will use a range of strategies to aid learning of these new facts such as:
 - Knowledge of previous tables to support learning the new facts e.g. knowing 2x table and doubling the facts gives the answers to 4x table facts, then doubling again gives answers to 8x table facts.
 - Counting in multiples when counting objects or money, or simply chanting the multiples forwards and backwards.
 - Spotting patterns and making rhymes e.g. I ate (8) and ate (8) until I was sick (6) on the floor (4) etc.
 - Knowledge of the inverse means there's lots of facts that have already been learned.

Year 4

- Explicit teaching of the 6, 7, 9, 11 and 12 times tables in arithmetic lessons. Teachers will use a range of strategies to aid learning of these new facts such as:
 - Knowledge of previous tables to support learning the new facts e.g. knowing 3x table and doubling the facts gives the answers to 6x table facts.
 - Counting in multiples when counting objects or money, or simply chanting the multiples forwards and backwards.
 - Spotting patterns e.g. 11, 22, 33, 44 etc. and using 'hacks' e.g. the finger trick for the 9s
 - Knowledge of the inverse means there's lots of facts that have already been learned.
- Baseline 'soundcheck' assessment in September for all children along with termly participation in the Officially Unofficial MTC event run by TTRS.
- Timetable weekly TTRS 'Garage' session as an arithmetic practice session and from January, weekly practice of the 'Soundcheck' mode in TTRS in preparation for the DfE Multiplication Times Tables Check in the summer term.

Year 5 and Year 6

- Explicit links made to multiplication facts when teaching the 4 operations, fractions and decimals.
- Continue to show the importance of continued times tables practice in order to find the lowest common denominator or dividing using partitioning for example.
- Teach the application of times tables facts in the context of problem solving.
- Continue to use arithmetic lessons to improve and maintain automaticity of learned facts.

How Parents/Carers can help at home

Every little bit of recall and retrieval practise helps!

- Commit to ensuring their child does five minutes of purposeful practice using Numbots (YR/Y1/Y2) or TTRS (Y2 Summer term - Y6). They should be completing games during this time, not looking at their data or changing their avatar!
- Use spare opportunities to practice learning these number facts – for example, in the bath, in the car when stuck in traffic, or even when going up or down the stairs. If your child brings home a set of maths flashcards, please use these at all spare opportunities.
- Make use of other resources to help learn the number facts such as the website 'Hit the button', Purple Mash (accessed through Wonde) or through apps like '1 minute maths' by White Rose Maths.

