Mathematics Policy

Subject Coordinator: Mrs. Cat Wilkinson

Governing Committee: Curriculum/Standards & Effectiveness Committee

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Date to be reviewed: October 2025

This policy should be read in conjunction with the following school policies:

• Calculation Policy (link to this provided within this document see appendix 3)

• Marking Policy

• SEND Policy

Introduction

Mathematics is an essential and inter-connected subject that has provided the solutions to some of history's most complex problems. Therefore, a strong foundation in mathematical concepts is essential to all areas of our lives including science, technology and engineering. Furthermore, mathematical knowledge is necessary for children's development of financial literacy as well as being required in most forms of future employment. This view is supported by the 2014 National Curriculum, stating that,

> "A high-quality mathematics education is therefore essential, as it 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 aims of the 2014 National Curriculum are for our pupils to:

- Become fluent in the fundamentals of mathematics through varied and frequent practice with complexity increasing over time
- Develop conceptual understanding and ability to recall and apply knowledge rapidly and accurately
- Reason mathematically; follow a line of enquiry, conjecture relationships and generalisations
- Develop an argument, justification and proof by using mathematical language. problem solve by applying knowledge to a variety of routine and non-routine problems, breaking down problems into simpler steps and persevering in answering

The National Curriculum sets out year-by-year programmes of study for Key Stages 1 and 2. This ensures continuity and progression in the teaching of mathematics.

INTENT

At St Mary's, we intend for ALL children to access a mastery led curriculum with its aim of:

✓ Promoting children's curiosity and enable them to safely risk take and learn from first-hand experience wherever necessary.

✓ Supporting the children to become fluent in mathematical understanding from the most basic level so that they can build upon their own understanding.

✓ Enabling our children to develop conceptual understanding, recall of number facts and patterns and apply their knowledge rapidly and accurately.

✓ Encouraging children's ability to reason through opportunities to discuss their thinking and understanding. This emphasis may result in less written work but much deeper understanding.

✓ Stimulating problem solving and solution finding. This is not only true in mathematical learning but in almost all aspects of school life.

✓ Supporting children to learn at an age appropriate level wherever possible

✓ Teaching and addressing misconceptions as these cause greater difficulties at a later stage of learning.

✓ Promoting smaller group, 'keep up' and 'catch up' learning opportunities whenever possible and appropriate, and encourage children to revisit their thinking to ensure they feel secure in their understanding and able to move confidently on to next steps and challenges.

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What is Teaching for Mastery?

Teaching for mastery is a coherent, small steps curriculum vision, based around 4 key areas:

- ➢ Fluency
- ➢ Representation and Structure
- ➢ Variation
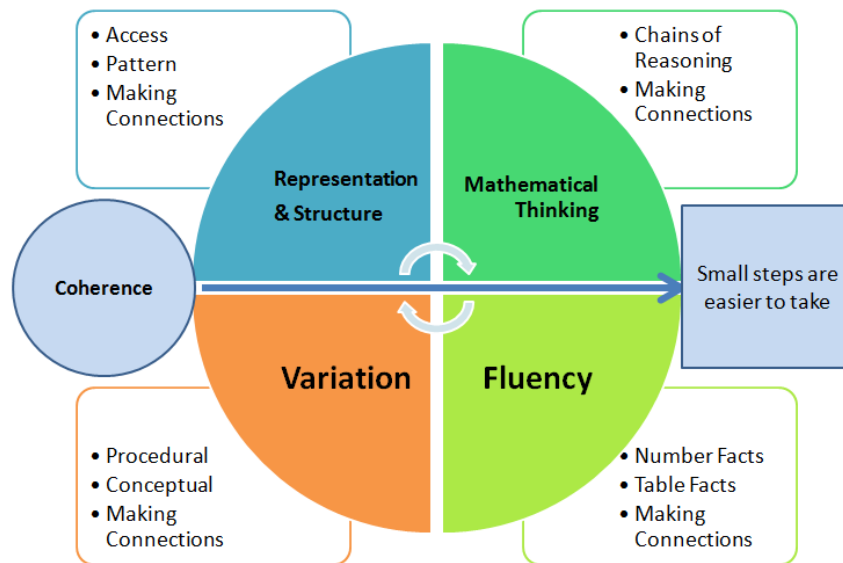
- ➢ Mathematical Thinking.

FLUENCY

This involves:

- Quick recall of facts and procedures

- The flexibility and fluidity to move between different contexts and representations of mathematics

- The ability to recognise relationships and make connections in mathematics

REPRESENTATION & STRUCTURE

Mathematical structures are the key patterns and generalisations that underpin sets of numbers – they are the laws and relationships that we want children to spot.

Using different representations can help children to 'see' these laws and relationships.

VARIATION

Procedural variation – This is a deliberate change in the type of examples used and questions set, to draw attention to certain features.

Conceptual variation – When a concept is presented in different ways, to show what a concept is, in all of its different forms.

MATHEMATICAL THINKING

Mathematical thinking involves:

- Looking for pattern and relationships

- Logical Reasoning

- Making Connections

COHERENCE

Teachers intend to develop a detailed knowledge of the curriculum in order to break the mathematics down into small steps to develop mastery and address all aspects in a logical progression. This will ensure deep and sustainable learning for all pupils.

As a result of teaching and learning being developed around a Teaching for Mastery approach in mathematics, our intent is that pupils will be able to meet the key aims of the National Curriculum for maths.

INTENT

Key Stage 1 Maths

The principal focus of mathematics teaching in key stage 1 is to ensure pupils develop confidence and mental fluency. The essential idea behind the Teaching for Mastery approach is that all children have a deep understanding so that future learning continues to build on solid foundations.

If the subject is represented using concrete materials, pictorial representations and abstract symbols, it will allow children to visualise maths in varied ways, see connections and to independently explore and investigate a topic.

Practical activities and resources offer the children a deeper mathematical understanding of more complex concepts. Providing children with visual representations also offers a scaffold when developing a more robust understanding of maths.

Throughout Key Stage 1, it is important that children gain a secure knowledge of number and place value and become confident when using the four operations in both formal methods as well as problem solving where often the approach is not immediately evident. Alongside number work, pupils begin to identify fractions using shapes, objects and quantities and make connections to equal sharing and grouping. Pupils are taught to count to ten in fractions, recognise equivalent fractions and develop their understanding of fractions on a number line.

At this stage, pupils will also develop their ability to recognise, describe, draw, compare and sort different shapes. Pupils have the opportunity to use a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money and are expected to use related vocabulary for all topics

Key Stage 2 Maths

Lower Key Stage 2

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.

Upper Key Stage 2

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.

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At this stage, pupils will 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 will 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.

Parental Involvement

We encourage parents to be involved by:

• Inviting them into school twice a year to discuss the progress of their child.

• Providing parents with a yearly report outlining their child's achievements.

• Sending homework activities weekly to be completed by or with their child.

SEND and Inclusion

Teaching maths for mastery is different because it offers ALL pupils access to the full maths curriculum. This inclusive approach, and its emphasis on promoting multiple methods of solving a problem, builds self-confidence and resilience in pupils. Though the whole class goes through the same content at the same pace, there is still plenty of opportunity for differentiation. Taking a mastery approach, differentiation occurs in the support and intervention provided to different pupils, not in the topics taught, particularly at earlier stages.

In mixed age classes, the lessons will be taught in a way so that each year group receives the curriculum content relevant to their year group (apart from in exceptional circumstances).

There is no differentiation in content taught, but the questioning and scaffolding individual pupils receive in class as they work through problems will differ, with higher attaining children, or those pupils who grasp concepts quickly, challenged through more demanding problems which deepen their knowledge of the same content.

Those children who are not sufficiently fluent are provided additional support to consolidate their understanding before moving on.

Pupils' difficulties and misconceptions are identified through immediate, formative assessment and addressed with intervention – commonly through individual or small group support later the same day. Children who are significantly behind their peers will attend 'closing the gap' interventions such as 1stclass@number or IDL numeracy but wherever possible, will still access new content at as close to their own year group expectations as possible.

IMPLEMENTATION

Timetabling mathematics

Fluency Lessons

All children will in KS1 particpate in a national project from the NCETM called Mastering Number which has been a positive addition to our maths curriculum as it is a robust and thorough programme, developed by mastery specialists and it aims for children in reception, Year 1 and Year 2 to leave KS1 with fluency in calculation and a confidence and flexibility with number. This is taught at least 4 times a week for 10 minutes in a very practical and interactive way, outside of the main maths lesson. As well as this, teachers ensure that pupils are fluent in a range of counting and instant recall facts through additional 5-minute daily opportunities to rehearse these skills as set out in the 'St Mary's 'Fast Fluent Facts' Prioritisation Document' (see appendix 4). These sessions will be mainly oral and repetitive in practice and evidenced through teacher assessment and monitoring rather than in books or folders.

In KS2 will receive a fluency lesson (10-15 minutes long) at least 4 times per week up to the end of Year 5 (these are expected to be secure by Y6 and this time will be allocated to procedural practice and securing any gaps in fluency). From November 2023, Year 4 and 5 will be participating in the 1st cohort of schools to undertake the Mastering Number KS2 programme that has been developed by the NCETM and heavily funded by the DfE.

The fluency sessions will be focused around areas from the 'St Mary's 'Fast Fluent Facts' Prioritisation Document' (see appendix 4) which lists the key recall areas needing to be explicitly taught and practised in each year group.

These can be taught in any order the teacher deems appropriate so long as covered by the end of the year. Fluency sessions are not necessarily evidenced, as these may be verbal or physical in nature depending on the skill and age group.

All KS2 pupils will receive a daily, separate Mastery based maths lesson (of between 45 minutes and an hour depending on age of pupils) although mathematical skills run through many other areas of the curriculum.

Teacher assessment will be ongoing and inform them of children who need intervention to develop these skills and ensure that unless in exceptional circumstances, all children are becoming increasing fluent as they get older.

Mastery Lessons

All children from Y1-Y6 are taught a main mastery maths lesson of 40-45 minutes.

Each lesson includes elements of:

➢ Fluency, to practise skills
➢ Reasoning, to deepen understanding
➢ Problem solving, to apply skills

Planning Mastery lessons:

Teachers use the White Rose Mastery planning for their medium term plans (see appendix 1) as they are designed to meet the Teaching for Mastery demand for a small steps approach (nudging on pupil's learning daily so concepts can be developed systematically and the content never appears overwhelming). These plans are set out in 'blocks' such as 'place value', and a number of 'blocks' will be covered each term.

*NB - In year 6, due to the children sitting SATs, teachers may occasionally rearrange these blocks to meet the needs of their pupils, however all the blocks will be taught by the end of the academic year.

From these medium term plans, teachers use additional resources that have been carefully mapped to the White Rose Scheme (V 3.0 see appendix 1) (including Third Space Learning Maths hub resources and training materials from NECTM) to develop daily lesson plans. These resources help to endure that each lesson is produced to incorporate the above elements.

Teachers adapt the resources provided through White Rose to meet the needs of the pupils and the wide ranging nature of ability gaps in their class, especially post-pandemic. To ensure our curriculum is tailored, staff are selective of the tasks they choose to use and prepare 'rapid grasper' challenges which are interleaved throughout the lessons to ensure challenge is sufficient for some, and time is spent deepening and challenging while other children may be being supported to access the core content.

Classroom Organisation for Mastery Lessons

Wherever possible, whole year group teaching is adopted and children work in mixed ability groups OR children are placed into ability sets within their year groups so that targeted support can be given. Children are only receiving an alternative year group curriculum in extreme circumstances and this is avoided wherever possible. Depending on the context of the lesson, or the needs of pupils, teachers may opt to deliver one whole class input or when necessary, a carousel type delivery where each year group it delivered to separately whilst the other is completing relevant work (usually supported by a TA).

All classrooms have maths displays with key vocabulary clearly displayed and a maths working wall that reinforces key concepts, strategies and processes.

Every classroom has a range of practical apparatus/manipulatives to support children's learning, with additional resources stored centrally. Teacher are encouraged to use these regularly, especially when beginning a new area of learning, to support the children's understanding of more abstract concepts.

MARKING

Maths books should be marked in blue biro, in as much detail as appropriate to the task.

The codes used in marking:

- ➢ VF (verbal feedback)
- ➢ G (guided)
- ➢ I (independent)

Marking should:

- ➢ Be completed in a timely manner to identify and address misconceptions quickly, therefore on the spot marking, self or peer marking (if age-appropriate) is encouraged
- ➢ Have a face to indicate the level of success
- ➢ If necessary for corrections, a useful and constructive comment
- ➢ Make clear what children need to do to improve by highlighting in green the specific point at which mistakes have been made within a calculation.
- ➢ Enable children to make visible signs of improvement as a consequence of the marking

Next steps marking is rare due to the nature of the mastery, guided approach lessons, meaning that the next step is the next lesson. On occasion, or when the teacher feels it is necessary for their own assessments, they will be used if it is of benefit to the individual child and should take the form of the following:

- ➢ A challenge (an extension of successful previous learning - ideally using a variety of skills such as reasoning, explaining or problem solving)
- ➢ "Can you do *34 + 8*2 = 976
- ➢ Reminder (Identifying small computation errors required to correct a mistake)
- ➢ "Do you think there is anything missing in this calculation?"
- ➢ Steps / Instructions (An error using steps to success needs to be reinforced before the whole task can be completed)
- ➢ "Can you put these numbers in order?   23 34 12 83 9"
- ➢ "Where would you put the decimal point in your calculation?"

PRESENTATION IN BOOKS

Fluency work is often verbal but is sometimes evidenced in maths folders and books. In main mastery lessons, most commonly, selected challenges will be stuck in books and children will

record their work to the side of these. There may be some lessons where the provided worksheets from White Rose are utilised in their entirety due to the nature of the tasks, or as additional challenge for rapid graspers.

In all activities, they are encouraged to take pride in the appearance of their work in maths.

Recording of learning may include written, oral (then scribed by adult) or photographic evidence.

Pupils and teachers should refer to a WAGOLL when possible so that presentation of methods are demonstrated clearly.

HOMEWORK

All children will receive weekly homework that is linked to developing fluency or rehearsal of mastery work undertaken. This will be set on a class by class basis and decided by the class teacher based on need, but may include:

➢ Weekly allocation of games set on Times Tables Rockstars or Numbots (Apps that track and progress children through instant recall facts)
➢ Fluent in five practice (from Third Space Learning – a daily revisit of prior arithmetic skills)
➢ Flash back 4 (Recap of prior and current topics, 4 questions per day)
➢ Any relevant rehearsal of skills previously covered in class

LINKS BETWEEN MATHEMATICS AND OTHER SUBJECTS

Mathematics contributes to many other subject areas in the primary curriculum and opportunities are given to draw mathematical experience out of a wide range of activities. This allows the children to use and apply mathematics in real context. Teachers are encouraged to make links where possible in mathematics lessons to the context of the current class topic.

ICT

All teachers are encouraged to use ICT to enhance teaching and learning in mathematics where appropriate. Every classroom is equipped with an Interactive Smartboard and all pupils have access to iPads and laptops. Opportunities will be provided for the children to apply and develop their ICT capabilities in mathematics through mathematical software installed on our network and web-based games and software such as floor turtles, databases and spreadsheets.

IMPACT

Assessment

Through careful, small-step planning and teaching of mathematical areas, with a heavy emphasis on instant recall, alongside deep and meaningful mastery based learning, children at St Mary's are expected to make one judgement level progress each term at their expected year group standard. These levels are annotated as the year group they are working at, then E (entering – ideally be end

of term 1), D (developing – ideally by the end of term 2) and S (secure – ideally by the end of term 3) *E.g. a child making expected progress after the first term in Y2 will be judged as 2E.*

To monitor and track pupil progress, there is a cycle of assessments in place. Children will be given a pre-block assessment to identify any gaps in understanding from previous year groups that need addressing before, or alongside, new learning. Children will then also complete an end of block assessment to help support teacher assessments.

At the end of each full term, children will complete the White Rose end of term assessments that will recap all of the learning covered, and this will aide teachers when assessing children. They will then use this, alongside other evidence, to highlight progress through marking off curriculum statements on the KLIPS documents from Lancashire Professional Development Service.

Based on the KLIPS document, children will be given judgement of entering, developing or secure within their year group at the end of each term. Each term, the teachers will meet with the lead of the Key Stage and discuss pupil progress, putting into place intervention as needed to accelerate the progress of pupils who are may be falling behind.

It is the expectation that the majority of pupils, through this careful monitoring and assessment process, will receive a secure judgement by the end of each year group. To confirm this, children will complete an end of year assessment from White Rose or Third Space Learning to reinforce judgements made.

Mathematics in EYFS:

Within the EYFS, mathematics is developed through purposeful, play based experiences and will be represented throughout the indoor and outdoor provision. Teachers in the EYFS ensure the children learn through a mixture of adult led activities and child-initiated activities both inside and outside of the classroom. Mathematical understanding will be developed through a range of methods including stories, songs, games, imaginative play, child initiated learning and structured teaching. As pupils progress, they will be encouraged to record their mathematical thinking in a more formal way.

Mathematics is taught through an integrated approach. This is supported by the Development Matters non statutory guidance and content is mainly focussed around the content of NCTM Mastering Number resources (see appendix 4). Some wider maths areas are supported through White Rose Medium term plans for EYFS Maths.

The EYFS Framework in relation to mathematics aims for our pupils to achieve the following Early Learning Goals:

 ELG: Number

• develop a deep understanding of number to 10, including the composition of each number.

• Subitise up to 5.

• Automatically recall number bonds up to 5 and some number bonds up to 10, including double facts.

ELG: Numerical Patterns

• Verbally count beyond 20, recognising the pattern of the counting system.

• Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.

• Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

In addition, the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures**.**

EYFS assessment

Children in EYFS will be monitored closely across the year and observations and assessments will be made in an informal way each day. In EYFS, children are measured at the end of Foundation stage against the Early Learning goals criteria for the mathematics specific area of development and are graded as 'emerging' or 'expected' for number and numerical patterns Early Learning Goals. Children who are not making the expected progress will be identified and appropriate support / intervention will be put in place with the aim of accelerating progress.

Monitoring and Review

The monitoring of maths teaching and pupil progress is the shared responsibility of teachers, subject leader and the senior leadership team. The work of the subject leader includes supporting colleagues in the teaching of maths, keeping up to date with current developments as well as providing a strategic lead and direction for the subject. The school's governing body receive regular updates to inform them of the vision for continually driving forward teaching for mastery.

Policy review and update

Last reviewed – October 2023

Date of next review – October 2024

Appendix 1 – Termly overviews from White Rose - Version 3.0

Year 1

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number **Place value (within 10)**					Number **Addition and subtraction (within 10)**					Geometry Shape	Consolidation
Spring	Number **Place value (within 20)**			Number **Addition and subtraction (within 20)**			Number **Place value (within 50)**		Measurement **Length and height**		Measurement **Mass and volume**	
Summer	Number **Multiplication and division**			Number **Fractions**		Geometry Position and direction	Number **Place value (within 100)**		Measurement Money	Measurement **Time**		Consolidation

Year 2 (NB – the order of prioritisation for topics may be amended in Y2 at the teacher's discretion dependent on the needs of the children prior to SATS but all content will be covered by the end of the academic year)

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number **Place value**				Number **Addition and subtraction**					Geometry **Shape**		
Spring	Measurement **Money**		Number **Multiplication and division**					Measurement **Length and height**		Measurement **Mass, capacity and temperature**		
Summer	Number **Fractions**			Measurement **Time**			**Statistics**		Geometry **Position and direction**		Consolidation	

Year 3

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number **Place value**			Number **Addition and subtraction**					Number **Multiplication and division A**			
Spring	Number **Multiplication and division B**			Measurement **Length and perimeter**			Number **Fractions A**			Measurement **Mass and capacity**		
Summer	Number **Fractions B**		Measurement **Money**		Measurement **Time**			Geometry **Shape**		Statistics		Consolidation

Year 4

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number **Place value**				Number **Addition and subtraction**			Measurement **Area**	Number **Multiplication and division A**			Consolidation
Spring	Number **Multiplication and division B**			Measurement **Length and perimeter**		Number **Fractions**				Number **Decimals A**		
Summer	Number **Decimals B**		Measurement **Money**		Measurement **Time**		Consolidation	Geometry **Shape**		Statistics	Geometry **Position and direction**	

Year 5

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number **Place value**			Number **Addition and subtraction**		Number **Multiplication and division A**			Number **Fractions A**			
Spring	Number **Multiplication and division B**			Number **Fractions B**		Number **Decimals and percentages**			Measurement **Perimeter and area**		**Statistics**	
Summer	Geometry **Shape**			Geometry **Position and direction**		Number **Decimals**			Number **Negative numbers**	Measurement **Converting units**		Measurement **Volume**

Year 6 (NB – the order of prioritisation for topics may be amended in Y6 at the teacher's discretion dependent on the needs of the children prior to SATS but all content will be covered by the end of the academic year)

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number **Place value**	Number **Addition, subtraction, multiplication and division**						Number **Fractions A**		Number **Fractions B**		Measurement **Converting units**
Spring	**Ratio**		**Algebra**		Number **Decimals**		Number **Fractions, decimals and percentages**		Measurement **Area, perimeter and volume**		**Statistics**	
Summer	Geometry **Shape**			Geometry **Position and direction**	**Themed projects, consolidation and problem solving**							

Appendix 2 - Mastering Number Overview R-Y2

Reception

Strand/ Half-term	Subitising	Cardinality, ordinality and counting	Composition	Comparison
1 Children will:	● perceptually subitise within 3 ● identify sub-groups in larger arrangements ● create their own patterns for numbers within 4 ● practise using their fingers to represent quantities which they can subitise ● experience subitising in a range of contexts, including temporal patterns made by sounds.	● relate the counting sequence to cardinality, seeing that the last number spoken gives the number in the entire set ● have a wide range of opportunities to develop their knowledge of the counting sequence, including through rhyme and song ● have a wide range of opportunities to develop 1:1 correspondence, including by coordinating movement and counting ● have opportunities to develop an understanding that anything can be counted, including actions and sounds ● explore a range of strategies which support accurate counting.	● see that all numbers can be made of 1s ● compose their own collections within 4.	● understand that sets can be compared according to a range of attributes, including by their numerosity ● use the language of comparison, including 'more than' and 'fewer than' ● compare sets 'just by looking'.
2 Children will:	● continue from first half-term ● subitise within 5, perceptually and conceptually, depending on the arrangements.	● continue to develop their counting skills ● explore the cardinality of 5, linking this to dice patterns and 5 fingers on 1 hand ● begin to count beyond 5 ● begin to recognise numerals, relating these to quantities they can subitise and count.	● explore the concept of 'wholes' and 'parts' by looking at a range of objects that are composed of parts, some of which can be taken apart and some of which cannot ● explore the composition of numbers within 5.	● compare sets using a variety of strategies, including 'just by looking', by subitising and by matching ● compare sets by matching, seeing that when every object in a set can be matched to one in the other set, they contain the same number and are equal amounts.
3	● increase confidence in subitising by continuing to explore patterns	● continue to develop verbal counting to 20 and beyond	● continue to explore the composition of 5 and	● continue to compare sets using the language of

Children will:	within 5, including structured and random arrangements • explore a range of patterns made by some numbers greater than 5, including structured patterns in which 5 is a clear part • experience patterns which show a small group and '1 more' • continue to match arrangements to finger patterns.	• continue to develop object counting skills, using a range of strategies to develop accuracy • continue to link counting to cardinality, including using their fingers to represent quantities between 5 and 10 • order numbers, linking cardinal and ordinal representations of number.	practise recalling 'missing' or 'hidden' parts for 5 • explore the composition of 6, linking this to familiar patterns, including symmetrical patterns • begin to see that numbers within 10 can be composed of '5 and a bit'.	comparison, and play games which involve comparing sets • continue to compare sets by matching, identifying when sets are equal • explore ways of making unequal sets equal.
4 **Children will:**	• explore symmetrical patterns, in which each side is a familiar pattern, linking this to 'doubles'.	• continue to consolidate their understanding of cardinality, working with larger numbers within 10 • become more familiar with the counting pattern beyond 20.	• explore the composition of odd and even numbers, looking at the 'shape' of these numbers • begin to link even numbers to doubles • begin to explore the composition of numbers within 10.	• compare numbers, reasoning about which is more, using both an understanding of the 'howmanyness' of a number, and its position in the number system.
5 **Children will:**	• continue to practise increasingly familiar subitising arrangements, including those which expose '1 more' or 'doubles' patterns • use subitising skills to enable them to identify when patterns show the same number but in a different arrangement, or when patterns are similar but have a different number • subitise structured and unstructured patterns, including those which show numbers within 10, in relation to 5 and 10	• continue to develop verbal counting to 20 and beyond, including counting from different starting numbers • continue to develop confidence and accuracy in both verbal and object counting.	• explore the composition of 10.	• order sets of objects, linking this to their understanding of the ordinal number system.

	• be encouraged to identify when it is appropriate to count and when groups can be subitised.			
6	In this half-term, the children will consolidate their understanding of concepts previously taught through working in a variety of contexts and with different numbers.			

Year 1 Mastering Number

Strand/ Half-term	Subitising	Cardinality, ordinality and counting	Composition	Comparison	Addition and subtraction/ Number facts
1 **Children will:**	● revisit subitising within 5 using perceptual subitising ● practise conceptual subitising of bigger numbers as they become more familiar with patterns made by the numbers 5–10.	● explore the linear number system within 10, looking at a range of ordinal representations ● explore the link between the 'staircase' pattern and a number track.	● focus on the composition of numbers within 10, with a particular emphasis on the composition of numbers 6, 7, 8 and 9 as '5 and a bit', as well as exploring the composition of numbers 5 and 6 in-depth ● explore the composition of odd and even numbers, identifying that even numbers are made of 2s and odd numbers have 'an extra 1' – they will link this to the 'shape' of these numbers.		Although children will not be looking at number bonds expressed as equations, their work on the composition of numbers within 10 will be developing their knowledge of number bonds.
2 **Children will:**	● continue to practise conceptually subitising numbers they have already explored the composition of.	● review the linear number system to 10 as they compare numbers.	● continue to explore the composition of the numbers 7–9 in-depth, linking this to their understanding of odd and even numbers ● explore the composition of 10, developing a systematic approach to finding pairs that sum to 10.	● revisit what is meant by 'comparing' and see that quantities can be compared according to different attributes, including numerosity.	As above.
3 **Children will:**	● continue to practise conceptually subitising numbers they have		● review the composition of numbers within 10, linking these to part-part-whole representations	● compare numbers within 10, linking this to their understanding of the linear system	● develop their recall of number bonds within 10, through the use of exercises which use

	already explored the composition of.		● practise recalling missing parts for numbers within 10.	● use the inequality symbol to create expressions, e.g. 7 > 2, and use the language of 'greater than' and 'less than' ● reason about inequalities, drawing on their knowledge of the composition of numbers, e.g. Is this true or false? 3 and 2 is less than 4.	written numerals but not the symbols +, − , or =.
4 **Children will:**	● continue to practise conceptually subitising numbers they have already explored the composition of.	● review the linear number system to 10, looking at a range of representations, including a number line ● explore the use of 'midpoints' to enable them to identify the location of other numbers.	● review the composition of odd and even numbers, linking this to doubles and near doubles ● explore the composition of the numbers 11–20, seeing representations which show the structure of these numbers as 'ten and a bit'.		● continue to develop their recall of bonds within 10, through the use of exercises which do NOT involve written equations, such as 4 + 3 = ? ● identify doubles and near doubles through visual representations of odd and even numbers.
5 **Children will:**	● continue to practise conceptually subitising numbers they have already explored the composition of. ● conceptually subitise numbers within 20 as they become more familiar with the	● review the linear number system to 20, looking at a range of representations, including a number line ● explore the use of 'midpoints' to enable them to identify the location of other numbers.	● continue to explore representations which expose the composition of numbers within 20.	● compare numbers within 20, including questions which use the symbols +, <, >, or =, such as: True or false? 10 + 4 < 14 10 + 4 = 14 10 + 4 > 14	● develop their fluency in additive relationships within 10, using a range of activities and games ● draw on their knowledge of the composition of numbers to complete written equations ● revisit strategies for addition and subtraction

	composition of numbers within 20.				within 10 and apply these to a range of questions, including written equations.
6 **Children will:**	● continue to use conceptual subitising, especially when using a rekenrek.		● apply their knowledge of the composition of numbers, to calculations within 10 and 20.	● continue to draw on their knowledge of the relative size of numbers when answering questions using the inequality symbol.	● continue to practise recalling additive facts within 20, applying their knowledge of the composition of numbers within 20 and strategies within 10.

Year 2 Mastering Number

Strand/ Half-term	Subitising	Cardinality, ordinality and counting	Composition	Comparison	Addition and subtraction/ Number facts
1 Children will:	• develop conceptual subitising skills as they become more familiar with patterns made by numbers within 10 and understand their composition • use perceptual and conceptual subitising when using a rekenrek.	• explore the linear number system within 10, looking at a range of representations • compare number tracks and number lines and explore the use of 'midpoints' to enable them to identify the location of other numbers.	• focus on the composition of numbers within 10, with a particular emphasis on the composition of numbers 6, 7, 8 and 9 as '5 and a bit', as well as exploring the composition of numbers 5 and 6 in-depth • explore the composition of odd and even numbers, identifying that even numbers are made of 2s and odd numbers have 'an extra 1' – they will link this to the 'shape' of these numbers.		• link their growing understanding of the composition of numbers within 10 to the related additive facts, including adding 2 to an odd or even number • practise recalling facts in a variety of ways, including through solving simple picture problems and completing equations with a missing sum or addend,
2 Children will:	• continue to practise conceptually subitising numbers they have already explored the composition of.	• review the linear number system as they compare numbers.	• continue to explore the composition of the numbers 7–9 in-depth, linking this to their understanding of odd and even numbers	• compare numbers within 10, linking this to their understanding of the linear number system • use the inequality symbols to create expressions, e.g. 7 > 2, and use the language of 'greater than' and 'less than' • draw on their knowledge of number bonds to answer questions in the form: True or false? 5 + 3 > 7	• continue to practise recalling additive facts for numbers within 10, using a range of equations, games and picture problems.
3 Children will:	• continue to practise conceptually subitising numbers they have already explored the composition of, including 'teen' numbers when they have reviewed the composition of 11–19.		• review the composition of 11 to 19 as 'ten and a bit' and explore ways to represent this.		• focus on number bonds within 10 presented in the part-part-whole structure, including identifying a missing 'part' and relating this to subtraction equations • review strategies for adding 1 and 2 to odd and even numbers to subtraction facts presented in different ways • apply their knowledge of the composition of 11–19 to calculations in which 10 is a part • apply their knowledge of composition to facts involving 3 addends.
4 Children will:	• continue to conceptually subitise the numbers 11–19 using a range of representations, which expose the structure of these numbers as 'ten and a bit'.	• revisit the structure of the linear number system within 20, making links between the midpoints of 5 and 10, and 15.	• review the composition of odd and even numbers, linking this to doubles and near doubles.	• continue to compare numbers within 20, including questions which use the symbols +, <, >, or =, such as: Write the correct symbol: 10 + 4 ☐ 15	• draw on their knowledge of the linear number system and apply this to calculations involving 1 more and 1 less, and pairs of numbers with a difference of 1 • use their understanding of the composition of odd and even numbers to find doubles and near doubles

5 **Children will:**	• revisit previous activities which develop their subitising skills.	• review the linear number system to 100, applying their knowledge of midpoints to place numbers on a structured number line – they will identify the multiples of 10 that come before and after a given number.	• revisit previous activities which develop their understanding of the composition of numbers within 10 and 20.	• reason about equalities and inequalities using equations and answering questions, such as: True or false? 5 + 3 = 6 + 2 9 + 4 > 9 + 5 9 + 6 < 10 + 5 This will help them become fluent in the use of the inequality symbol as well as practising their number bond knowledge.	• become fluent in a range of strategies involving calculations within 20, using 'make 10' strategies to add, and subtracting through the tens boundary • practise recalling number bonds through a range of activities and games which will encourage them to reason about sums and differences.
6 **Children will:**	As above.		As above.		• develop their fluency in additive relationships within 20, using a range of activities and games and revisiting previously taught strategies where necessary.

Appendix 3- Calculation policy

The calculation policy follows the guidance from the White Rose Scheme and can be accessed as ZIP folder here:

https://whiterosemaths.com/resources?year=year-1#supportingmaterials

and are available to all staff on the school network @ T:\MATHS CALCULATION POLICIES FOR ALL

Appendix 4

'St Mary's 'Fast Fluent Facts' Prioritisation (Year 1 – Year 5 only)

Year 1

- ✓ *Identify odd and even numbers (linked to counting from 0 in 1s and 2s)*

- ✓ *Recall number bonds up to 10 (without a counting strategy)*

- ✓ *Find half of even numbers up to 20 and double of integers up to 10*

- ✓ *Count up to 20 in 2s (forwards and backwards)*

- ✓ *Count up to 50 in 5s (forwards and backwards)*

- ✓ *Count up to 100 in 10s (forwards and backwards)*

✓ *Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number.*

✓ *Orally name appropriate 2D and 3D shapes with speed and accuracy*

✓ *Orally state facts about language relating to dates and time (including days of week, weeks, months and years)*

Year 2

✓ *Count up to 36 in 3s (forwards and backwards)*

✓ *Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward.*

✓ *Apply recalled facts to demonstrate their understanding of rules of commutativity for addition, subtraction or multiplication and division using fact families with speed and accuracy*

✓ *Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 (bonds totalling 5, 10 and 20).*

✓ *Use recall of addition and subtraction facts inside 20 to calculate mentally TO + O and TO – O (i.e. without a counting strategy)*

✓ Find 1 or 10 more or less than a given number

✓ *Recall (i.e. not count up) multiplication and division facts for 2x including missing number questions (e.g. 5 x __ = 35)*

✓ *Recall (i.e. not count up) multiplication and division facts for 5x including missing number questions (e.g. 5 x __ = 35)*

✓ *Recall (i.e. not count up) multiplication and division facts for 10x including missing number questions (e.g. 5 x __ = 35)*

✓ *Quickly recall days of the week, weeks in a year, days in a year, months of the year, and now number of minutes in an hour and the number of hours in a day*

Year 3

✓ *Count from 0 in multiples of 4 forwards and backwards*

✓ *Count from 0 in multiples of 8 forwards and backwards*

✓ *Count from 0 in multiples of 50 forwards and backwards*

✓ *Derive and use doubles of all numbers to 100 and corresponding halves.*

✓ *Find 1, 10 or 100 more or less than given number*

✓ *Add and subtract numbers mentally, including: a three-digit number and ones. a three-digit number and tens. a three-digit number and hundreds*

✓ *Multiply a 1d or 2d number by 10 or 100*

✓ *Calculate mentally (without a counting strategy) HTO + O and HTO – O*

✓   *Recall (without counting) multiplication and division facts for 3x tables including missing numbers (e.g. 8 x __ = 56)*

✓   *Recall (without counting) multiplication and division facts for 4 x tables including missing numbers (e.g. 8 x __ = 56)*

✓ *Recall (without counting) multiplication and division facts for 8x tables including missing numbers (e.g. 8 x __ = 56)*

✓ *Recall all the prior years' time and date facts and now including the number of seconds in a minute and the number of days in each month, year and leap year*

Year 4

✓ *Count in multiples of 6 forwards and backwards*

✓ *Count in multiples of 7 forwards and backwards*

✓ *Count in multiples of 9 forwards and backwards*

✓ *Count in multiples of 25 forwards and backwards*

✓ *Count in multiples of 1000 forwards and backwards*

✓ *Find 0.1, 1, 10, 100 or 1000 more or less than a given number*

✓ *Recall and use addition and subtraction facts for 100.*

✓ *Use partitioning, working towards a mental strategy, to double or halve any number, including decimals to one decimal place*

✓ *Recall and use addition and subtraction facts for multiples of 100 totalling 1000.*

✓ *Recognise and write decimal equivalents of any number of tenths or hundredths.*

✓ *Recognise and write decimal equivalents to 1/4, ½, ¾*

✓ *knowledge (not adding/subtracting zeros) to mentally multiply and divide by 10 and 100*

✓ *Recall all multiplication facts for 6 forwards and backwards*

✓ *Recall all multiplication facts for 7 forwards and backwards*

✓ *Recall all multiplication facts for 9 forwards and backwards*

✓ *Recall all multiplication facts up to 12 x 12*

Year 5

✓ *Use partitioning to double or halve any number, including decimals to two decimal places*

✓ *Ensure all multiplication facts for up to 12 x 12 are secured with speed and accuracy*

✓ *Recall and use addition and subtraction facts for 1 and 10 (with decimal numbers to one decimal place)*

✓ *Recall percentage and decimal equivalents of ¼, ½, ¾, 1/5, 2/5, 4/5 and fractions with a denominator of a multiple of 10 or 25.*

✓ *Recall key fraction, decimal and percentage equivalences*

✓ *Count on and back with positive and negative whole numbers, including through zero.*

✓ *Mentally divide multiples of 10, 100 and 1000 by single digit numbers (e.g. 3200 ÷ 8 = 400)*

✓ *Multiply/divide whole numbers and decimals by 10, 100 and 1000.*

✓ *Find 0.01, 0.1, 1, 10, 100, 100 and other powers of 10 more or less than a given number*

✓ *Recall and use addition and subtraction facts for 1 and 10 (with decimal numbers to one decimal place)*

✓ *Establish whether a number up to 100 is prime and recall prime numbers up to 19*

✓ *To be able to quickly and accurately create 'coin cards / fact boxes' using derived multiplication facts (to support long division in Y6)*