Curriculum statement for the teaching and learning of Mathematics 2023/24

Our aim is to instil in our children a love of learning and develop a 'can do' approach that enables them to grow ambition. Our children will develop an understanding of themselves as individuals, with their own talents and characters, as well as value the people and world around them. We are committed to preparing our children for the next stage on their journey so that they are able to grasp all and any opportunities for their future.

INTENT

The Mullion Primary School mathematics curriculum, alongside The National Curriculum for mathematics, intends to ensure that all pupils:

1. 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.
2. **Reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language.
3. 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. Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas.

The programmes of study are, by necessity, organised into apparently distinct domains, but pupils should make **rich connections** across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. Our curriculum ensures children these apply mastery skills both in mathematics, as well as across the curriculum. We use the **White Rose Maths (WRM)** scheme as our scope and have adapted this to meet the needs of our pupils and our individual setting. This fits alongside the adaptation of our Calculation policy to ensure that our pupils have strength in utilising clear strategies which are built on from EYFS to Year 6. Further high-quality resources from Planpanion, Maths Shed and I See Reasoning are built into lessons to extend fluency, reasoning and problem solving.

The expectation is that the **majority** of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the **security of pupils' understanding and their readiness to progress to the next stage**. Pupils who grasp concepts rapidly should be challenged through being offered rich mastery and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on. We use 'Discovery Questions' before beginning a new block of learning to ascertain pupils' starting points in relation to the new, age-related content. We identify any pupils who need additional support both on a day-to-day basis and over a sustained period of time; we ensure that suitable strategies are put in place to support these pupils, through 1 to 1 or small group work, targeted, same-day interventions (SDI) and pre and post-teaching models or reteaching of key concepts or skills. **Numbersense** is also used from EYFS to build strong foundations in Early Number; this is developed through to the Autumn Term in Year 3 and is used as an intervention strategy from Years 4-6.

It is our intention that our Maths curriculum ensures that the National Curriculum requirements are not only met, but children receive a **broad and rich learning experience** developing a **love of learning** in mathematics. Maths teaching and learning provides children with the opportunity to become number fluent and increase their problem solving and reasoning ability. Through quality first-teaching, children experience learning in a variety of ways, using different resources and approaches including concrete, pictorial and abstract methods.

Our vision is to equip our pupils with **key skills, knowledge and vocabulary** that will enable them to be successful at all elements of the Maths curriculum, through meticulously planning the content of lessons and providing children with high-quality lesson resources. Children's success is embedded through providing a challenging curriculum; this curriculum is delivered in a variety of high-quality teaching and learning opportunities. These include daily morning maths, daily fluency recall practice and development of Key Instant Recall Facts (KIRFs), engagement with the Times Table Rockstars and Numbots platforms and high-quality learning experiences, both during allocated maths lessons and through the wider curriculum. We **celebrate success** and provide opportunities to showcase talent, both in individual classes and as a whole school through use of displays, Virtues assemblies and whole school competitions in arithmetic and Times Table Rockstars.

Underpinned By

The teaching of skills

Mullion Primary pupils will:

- Be confident in which strategies to use to support calculation
- Develop strong skills in recognising when a mental or written strategy is required
- Be able to choose the most efficient strategy through explicit teaching of these strategies, remembering that 'the most efficient mathematicians do the easiest maths'.

The teaching of fluency

Mullion Primary pupils' fluency is developed through:

- Daily retrieval of previously taught concepts (from the previous day, week, term, year, etc.) through Morning Maths fluency practice
- 'Recap it' element of the maths lesson to retrieve related knowledge required to access the day's maths content
- Times Table Rockstars and Numbots – in-school and as home learning
- Numbersense Maths
- Key Instant Recall Facts (KIRFs) – in-school and as home learning

The teaching of reasoning

Mullion Primary pupils' ability to reason mathematically is developed by:

- Following a line of enquiry
- Conjecturing relationships and generalisations
- Developing an argument, justification or proof using mathematical language.

This is developed in the daily maths lesson, through whole-class teaching, small group work and through independent 'Apply it' tasks.

The teaching of problem solving

Mullion Primary pupils' ability to solve problems is developed by:

- Applying their mathematics to a variety of routine and non-routine problems with increasing sophistication
- Breaking down problems into a series of simpler steps and persevering in seeking solutions.

This is developed in the daily maths lesson, through whole-class teaching, small group work and through independent 'Apply it' tasks.

The application of skills

Pupils apply skills within the daily maths lesson and across the curriculum; the 'Apply it' element of the lesson supports pupils to apply their knowledge and skills; this is also developed in the fluency retrieval practice methods as detailed above.

Vocabulary and Oracy

Mullion Primary pupils' vocabulary and oracy is developed by:

- Sharing of key vocabulary for the block of learning through the 'Learning Journey' in books and on working walls.
- Exposure to relevant vocabulary in the beginning of each maths lesson
- Reference to key vocabulary throughout the lesson and beyond
- Use of 'Maths Talk' mats to encourage partner talk
- Modelling of stem sentences
- Encouraging pupils to answer in sentences
- Key sentence stems displayed on working walls to support this
- Staff modelling maths talk and use of mathematical vocabulary throughout maths lessons and beyond.

Implementation

Curriculum Approach

- We have developed our scope, using White Rose as a starting point, to follow a specific structure, focusing on Place Value and the four operations in the Autumn Term, school-wide. This is supported by our Calculation Policy which embeds key strategies using the same manipulatives, throughout school.
- In the first part, we follow a 'Recap it!' and 'Learn it!' structure, where pupils recap prior, linked learning, then receive teacher input on the lesson's small step.
- Pupils then 'Practise it!', attempting a small number of fluency questions, linked to the 'Learn it!' part of the lesson.
- Finally, pupils 'Assess it!' and using a traffic light card system, assess their confidence in their learning.
- Then, pupils come back together for the second part of the maths session; staff will have scanned the red/amber pupils during 'Assess it' and those pupils will receive 'same-day intervention' to immediately support their learning and tackle any misconceptions.
- Pupils who assessed themselves as green are given the opportunity to 'Apply it!' and deepen their understanding through further varied fluency, reasoning and problem solving.

Early Years pupils follow a specific curriculum, designed to build the foundations of early number through focus on numbers to 10, 1 to 10, in a two-weekly cycle. This occurs in the Autumn Term, alongside daily Numbersense, building fluency with numbers 1-10 through development of subitising skills, focus on composition, cardinality (then counting) and comparision. In the Spring term, pattern, shape and space and measure are taught in depth, applying and deepening the key number fluency learnt in the Autumn Term.

Fluency

We start the day with a maths fluency activity with a different focus each day of the week; these activities are an opportunity for children to consolidate calculation strategies and to revisit areas already taught.

Weekly morning maths is delivered and structured as follows:

Monday: Flashback - skills covered in current block of learning (to recap the previous week's learning)
Tuesday: Recent Recap - skills covered in previous blocks of learning.
Wednesday: Cool KIRFs - practise of the current half term's KIRFs
Thursday: Rapid Recall - multiplication/division quick facts; linked to develop fluency (e.g. 12 x 10, 12 x 100, 12 x 11, 12 x 110, 12 x 220, 12 x 11)
Friday: Fast 10 - mixed fluency skills practice

In EYFS and Key Stage 1, morning maths fluency is completed through the daily Numbersense session.

Resources

Children will have access to a wide variety of resources to support their learning in maths, including:

- Key manipulatives
- Times Table Rockstars
- Numbots
- Maths Shed
- Testbase
- Within lessons, resources utilised from: Planpanion, Maths Shed, Twinkl, I See Reasoning

Maths Learning Journeys

Help our pupils to see the scope of each maths block, pupils refer to their Maths Learning Journey daily – this supports their knowledge of key vocabulary.

Manipulatives

Pupils have access to a wide range of manipulatives throughout the maths lesson; our Calculation Policy focuses on the use of tens frames and double-sided counters, moving onto place value grids and place value counters across school for consistency. However, pupils will utilise other resources to demonstrate representations, both concrete and pictorially (e.g. Base 10, part-whole models, bar models, etc.), using the aforementioned manipulatives to calculate.

Assessment

Prior to beginning a block, pupils complete a set of 'Discovery Questions' to ascertain their starting point; these cover previous years' skills related to the block of learning to support understanding of where teachers need to pitch each lesson at the start. Through high-quality first teaching, we continuously monitor pupils' progress against expected attainment for their age, using this assessment to support our planning and delivery.

We complete WRM end of block assessments at the end of each block of learning; these are used to inform further intervention required in areas where pupils are not yet secure.

NFER summative assessments are completed at the end of each half term; these again are used to inform further intervention required in the following half term for specific pupils.

We also assess KIRFs three times per half term (beginning, mid-point and end). We assess times table knowledge through Times Table Rockstars in Key Stage 2 (including Numbersense for Year 3 and as intervention in Years 4-6), and number bond/times table knowledge through Numbersense and Numbots in EYFS and Key Stage 1.

Impact

Pupil Voice

Through discussion and feedback, children talk enthusiastically about their maths lessons and speak about how they love learning about maths.

They can articulate the context in which maths is being taught and relate this to real life purposes.

Children show confidence and believe they can learn about a new maths area and apply the knowledge and skills they already have.

Evidence in Knowledge

Pupils know how and why maths is used in the outside world and in the workplace. They know about different ways that maths can be used to support their future potential.

Mathematical concepts or skills are mastered when a child can show it in multiple ways, using the mathematical language to explain their ideas, and can independently apply the concept to new problems in unfamiliar situations.

Children demonstrate a quick recall of facts and procedures. This includes the recollection of the times table.

Evidence in Skills

Pupils use acquired vocabulary in maths lessons. They have the skills to use methods independently and show resilience when tackling problems.

The flexibility and fluidity to move between different contexts and representations of maths is evident in all pupils.

Children show a high level of pride in the presentation and understanding of the work.

The chance to develop the ability to recognise relationships and make connections in maths lessons is evident.

Teachers plan a range of opportunities to use maths inside and outside school.

Outcomes

At the end of each year we expect the children to have achieved Age Related Expectations (ARE) for their year group. Some children will have progressed further and achieved greater depth (GD). Children who have gaps in their knowledge receive appropriate support and intervention.

Mastery

All children secure long-term, deep and adaptable understanding of maths which they can apply in different contexts.