Moorlands Primary School

"Anything is Possible!"

Mathematics Policy

Introduction

This policy outlines the teaching, organisation and management of the Mathematics at Moorlands Primary School. The school's policy for Mathematics is based on the National Curriculum 2014. The implementation of this policy is the responsibility of all the teaching staff.

Moorlands Curriculum is designed with the purpose that:

Language + Questioning = Communication.

The teaching and learning in Mathematics follows our teaching and learning policy which is based on the Rosenshine's principles of instruction (2012).
These are drawn from the following three sources:
1. Research in cognitive science
2. Research on the classroom practices of master teachers
3. Research on cognitive support to help pupils learn complex tasks

What is Mathematics?

Mathematics teaches us how to make sense of the world around us through developing a pupil's ability to calculate, to reason and to solve problems. It enables pupils to understand and appreciate relationships and pattern in both number and space in their everyday lives. Through their growing knowledge and understanding, pupils learn to appreciate the contribution made by many cultures to the development and application of mathematics.

Purpose:

The National Curriculum states that: "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."

At Moorlands Primary School, we believe Maths is learning that is relevant to their world and applicable to everyday life as well as being something that they will need as they move on through their school life and ultimately to the world of employment. A high-quality Maths experience should be one that develops the children's ability to think mathematically and one which allows them to apply the tools to which they have been exposed in a variety of ways.

Following the National Curriculum, mathematical teaching allows pupils to:
- Become FLUENT
- REASON and EXPLAIN mathematically
- SOLVE PROBLEMS

This means children are regularly exposed to opportunities involving increasingly complex problem solving and reasoning which allows them to apply their Maths knowledge. In doing so they are encouraged to develop an argument which they can prove and justify using mathematical vocabulary. This includes the ability to break down problems, both routine and non-routine, into a series of steps.

How does Mathematics look at Moorlands?

Mathematical teaching at Moorlands:

- delivers Maths in line with the National Curriculum guidelines providing a variety of strategies and visuals – concrete, pictorial and abstract: the school's calculation policy outlines this in further depth – this is based on White Rose 3.0.
- ensures the delivery provides reasoning opportunities for all
- creates a lively, exciting and stimulating environment in which the children can learn Maths
- develops a learning experience where pupils are able to adapt their method choice whether that is using formal, informal or mental strategies
- encourages children to use mathematical vocabulary to reason and explain
- allows time recollection of prior knowledge, making links to other curriculum areas and prior learning; talk is used to stimulate links in learning and develop a deeper understanding for Mathematical methods
- challenges are selected to stretch pupils in their understanding and justification

Moorlands Primary School uses the White Rose medium term structure and uses the White Rose small steps to support progressive maths teaching. CPA policy is based on these small steps are used throughout the school. The school places a high importance on progressive maths teaching and believes strong foundations in maths is required in order to be successfully built upon.

All maths lessons make links to prior learning; this supports the Rosenshine principes of memory recall. This may be done through a class discussion in response to an anchor question or through discussion generated by a model provided. There is a heavy focus on place value and number in the Autumn Term; this provides skills that pupils apply to other mathematical blocks across the year. During maths lessons teachers encourage children to verbalise their actions, and explain their thinking, asking a range of mathematical questions.

Concrete resources are accessible to pupils; the school promotes a CPA approach. We encourage the children to use these to support their mathematical understanding and focus on enabling pupils to achieve. Within lessons, Years 1-6, teachers are expected to follow our Mathematical lesson structure (lesson starter to allow opportunity to make links to prior learning, sharing/discussion of learning objective and sharing/discussion of vocabulary/sentence stems). Success criteria in KS1 is presented in a visual manner to support pupil access.

EYFS:

YR uses the EYFS White Rose progression to help pupils become ready for Year 1; there is also a focus on mathematical stories based around the current maths learning. EYFS pupils are assessed in mathematical areas from Development Matters on a termly basis.

During their time in the EYFS, children will have a keen focus on number, this includes rote and touch counting, counting out amounts, comparing groups of objects and using the correct language, recognising and ordering numbers, practical addition and subtraction, sharing, halving and doubling.

To support wider mathematics children will also engage in problem solving activities that include the other areas of Mathematic including naming and talking about shapes, using positional language, comparing and using the language of early measure including height, weight, capacity, patterns, money and time.

"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." EYFS Framework September 2021.

Maths sessions in Reception are taught using the White Rose EYFS curriculum to support a strong sense of number. In addition to this, opportunities are provided in continuous provision along group teaching and mathematical stories, rhymes and song. Here, pupils are supported to look for patterns and relationships, spot connections and to develop mathematical talk. Manipulatives such as ten frames, counting equipment are used to support early number concepts.

KS1 and KS2 Fluency Focus:
There is a daily focus on fluency from Year 1 to help support multiplication development. This is tracked half termly using TTRockstars Soundcheck.

In KS2, there is a focus on arithmetic 3 times weekly in the starter. Each term a arithmetic-focused assessment allows the tracking of arithmetic attainment using the White Rose arithmetic assessment. A holistic reasoning and problem-solving standardised score is established using Nfer assessments termly.

See Multiplication Progression Planner.

Language and oracy:

Explicit vocabulary and sentence stems are used as a scaffold throughout our maths curriculum, allowing children to communicate their ideas with growing articulacy. They provide a framework to embed conceptual knowledge and build understanding.

Throughout all Key Stages and units of learning, key vocabulary is chosen, and the meaning of words discussed widely to ensure that pupils have the knowledge to grasp new concepts based on prior learning.
Our Maths lessons are designed to encourage children to talk. Each lesson begins with a discussion about prior learning based on the Rosenshine Principles of Instruction.

Inclusion:

Teachers set high expectations for all pupils. We are aiming to give all children the opportunity to acquire a deep, long-term, secure and adaptable understanding of each unit.

Teachers adapt their instruction to meet individual needs by encouraging the use of manipulatives or pictorial representations. This approach helps students visualise the mathematics, create mental images, and develop a deeper understanding that they can apply to future mathematical challenges.

We recognize that every child is unique and learns at their own pace, so we plan additional fluency practice for those who need it. Teachers use Classroom Secrets, Twinkl, NCETM and other sources to

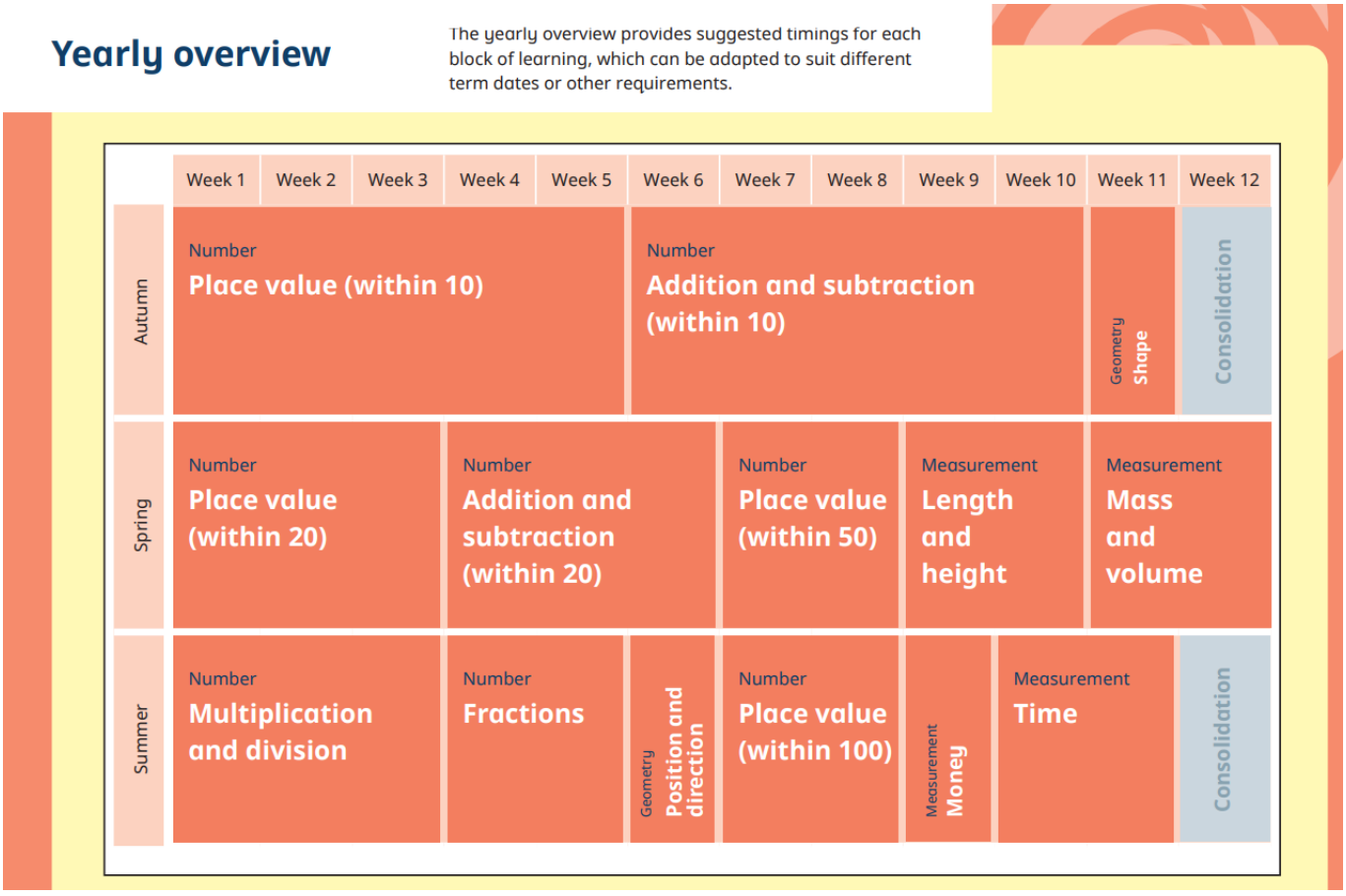
generate extra fluency questions based on the White Rose small steps, and in some lessons, children may focus on the practical aspects of mathematics without recording on paper, ensuring they fully grasp each concept before progressing.

In contrast to this, we also recognise that some fast graspers will need extra challenge in some lessons. To do this, we use challenge questions to 'stretch' and deepen children's understanding- again they use White Rose Maths, Classroom Secrets, Twinkl, NCETM or other sources to do this.

Interventions may include:

- Sandwell Numeracy Intervention
- 5 minute number box
- Precision Teaching
- Multiplication support
- Adapted or small group teaching
- Basic skills targeted groups
- Numbots
- TT Rockstars target
- Increased scaffolding
- Targeted adult support
- Year 6 booster session

Quality first teaching is prioritised at Moorlands. Questioning is carefully selected to support all pupil development.



Yearly overview

The yearly overview provides suggested timings for each block of learning, which can be adapted to suit different term dates or other requirements.

	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**		

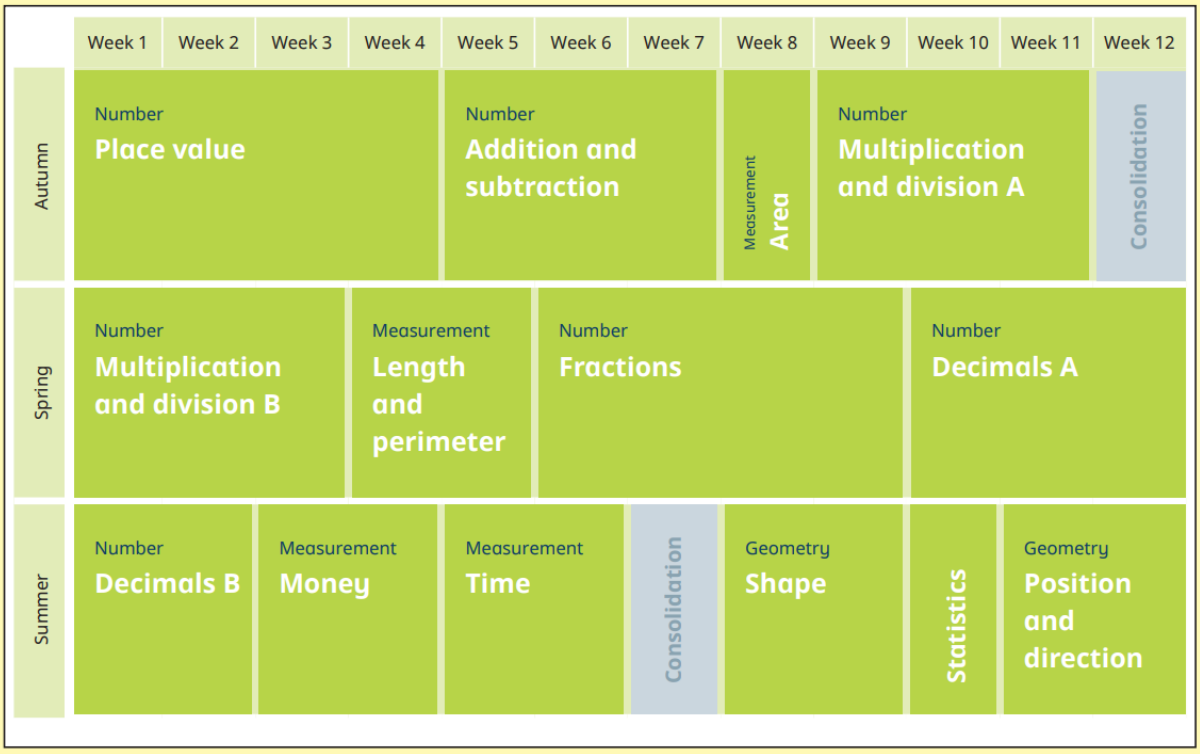
Yearly overview

The yearly overview provides suggested timings for each block of learning, which can be adapted to suit different term dates or other requirements.

	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**

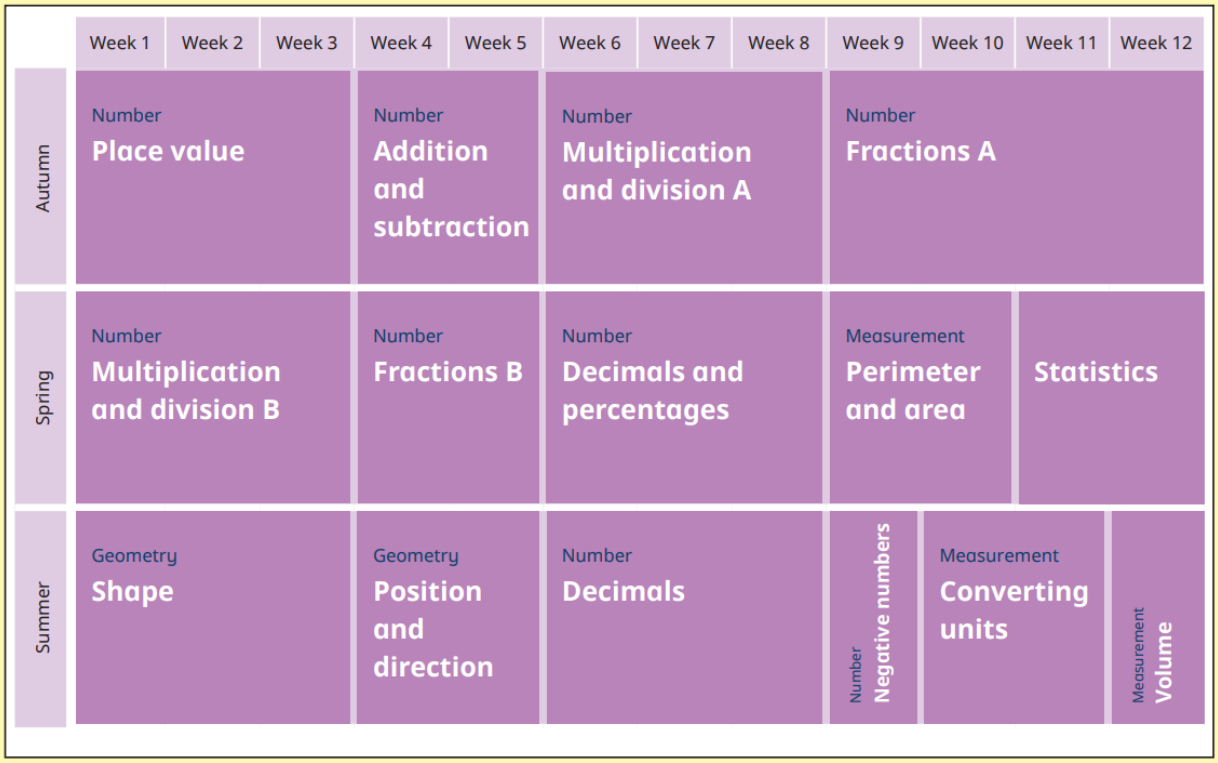
Yearly overview

The yearly overview provides suggested timings for each block of learning, which can be adapted to suit different term dates or other requirements.



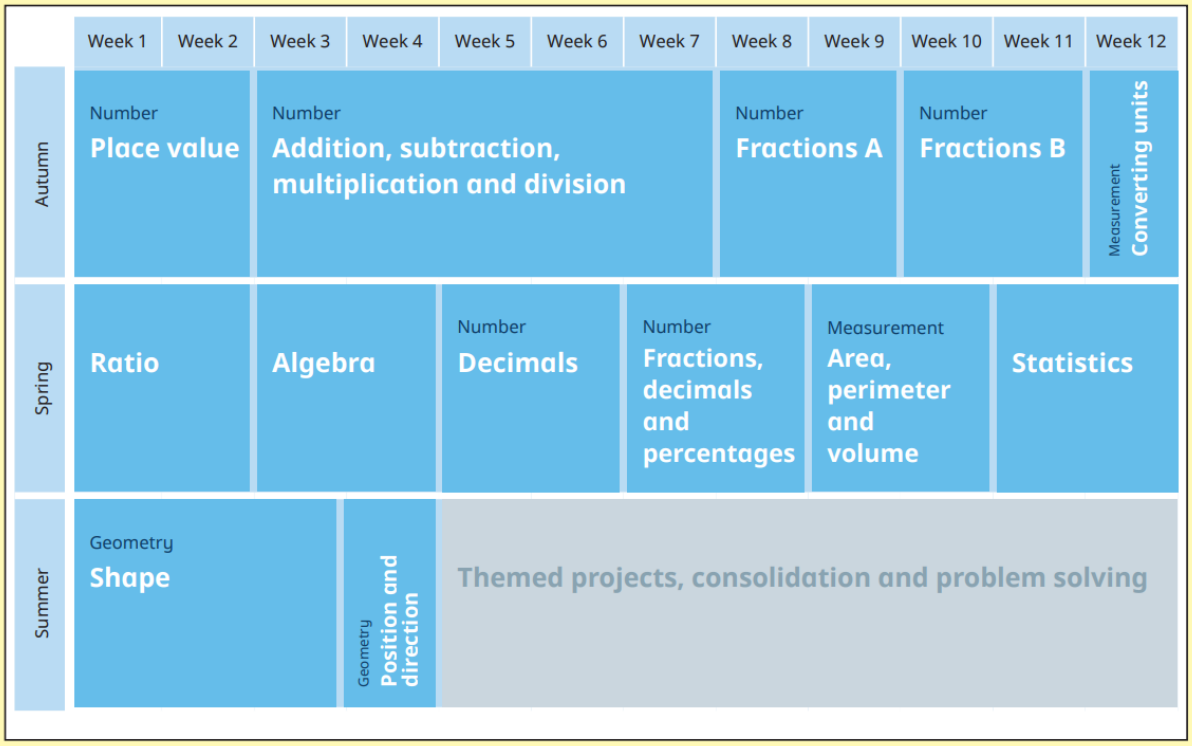
Yearly overview

The yearly overview provides suggested timings for each block of learning, which can be adapted to suit different term dates or other requirements.



Yearly overview

The yearly overview provides suggested timings for each block of learning, which can be adapted to suit different term dates or other requirements.



Continuity and Progression:

The use of the White Rose medium term structure supports a mastery approach to teaching and learning inline with the aims and objectives of the National Curriculum. The overviews have number at their heart which allows a large proportion of time reinforcing number to build competency ensuring the ideal of depth before breadth. It also provides opportunity to build reasoning and problem solving elements into the curriculum. Teachers use the White Rose 3.0 small steps and supplement with other inline resources to support in-class teaching.

Assessment and Feedback

Termly, pupils are assessed through the application of tests; this summative assessment will be used in conjunction with the assessment grids to identify next steps and therefore inform planning. Nfer tests are conducted which allows teachers to monitor progress and identify patterns in pupils' learning.

Within daily maths sessions, pupils are provided with feedback either verbally or through written marking. In line with Moorlands Marking and Feedback policy and in order to clarify understanding of a concept, children may be set gap tasks; these should be completed by the children at the next earliest opportunity after the lesson. When marking or giving feedback, teachers should adhere to the school's Feedback and Marking Policy.

Pupils are guided in self-assessment to become reflective of their own mathematical learning. There are sentence stems for Years 1 and 2, 3 and 4, 5 and 6 to guide this reflection and encourage them to think about past learning.

Assessment of multiplication fluency facts is made through the use of multiplication baselines – this may be written or using online software. Heat Maps support teacher assessment of cohorts and individual pupils using TT Rockstars.

Maths talk provides a daily assessment opportunity for teachers – this informs questioning selected.

Monitoring and Review

Monitoring of the standards of pupil work and of the quality of teaching in Mathematics is the responsibility of the Maths lead. The Maths lead provides feedback to staff indicating both areas of strengths and further areas of development. The work of the Maths lead also involves supporting colleagues in the teaching of Mathematics, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school. Curriculum updates are shared at the Pupil and Curriculum Committee formed by members of the governing body. Pupils will be consulted to gain a 'pupil voice'.

Home – School links

At the beginning of each term, parents are provided with a Curriculum Newsletter which informs parents of the Mathematical concepts being taught. Home learning is encouraged and celebrated through the use of TT Rockstars.

The school is part of the National Numeracy Strategy and homework following the National Numeracy Strategy toolkit is being introduced.