What makes me a Mathematician?

MANOR PARK INFANT SCHOOL & NURSERY

Learning Together, Success Forever

Why is mathematician important at our school? (Vision Statement)

Intent

At Manor Park Infant and Nursery School, we strive to make maths fun, purposeful and interesting for all children. We aim to equip all pupils with the skills and confidence to solve a range of problems through fluency with numbers and mathematical reasoning. Children are encouraged to see the mathematics that surround them every day and enjoy developing vital life skills in this subject. We use White Rose to underpin our planning. We aim for every child to develop a sound understanding of maths, equipping them with the skills of calculation, reasoning and problem solving that they need in life beyond school. They will be given access to a variety of mathematical opportunities, which will enable them to make the connections in learning, develop and use new vocabulary and discuss their learning. By working across different representations of learning and using resources, we aim for our children to be confident mathematicians who are independent, inquisitive and not afraid to take risks.

EYFS DFE definition:

Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically. Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers. By providing frequent and varied opportunities to build and apply this understanding – such as using manipulatives, including small pebbles and tens frames for organising counting – children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built. In addition, it is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures. It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes.

The national curriculum for mathematics aims to ensure that all pupils:

- become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately
- reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions

Implementation

Our curriculum incorporates the coverage of the statutory outcomes outlined in the Early Years Foundation Stage and KS1 Mathematics Programme of Study – National Curriculum 2014. Our planning is based on the White Rose Maths Schemes of Learning to guarantee consistency, coherence and progression throughout the EYFS and KS1. In addition, staff refer to other materials to support short-term planning. These are used across EYFS and KS1 allowing children to be exposed to a variety of different types of learning and problems to solve. Teachers implement our schools' agreed Calculation Policy. To learn mathematics effectively, some things have to be learned before others and this order of small step learning is factored into our planning (e.g. place value needs to be understood before working with addition). At Manor Park Infant and Nursery School, we have an emphasis on number skills first, carefully ordered, throughout the curriculum. Our pupils engage and enjoy using concrete resources to experiment and complete practical activities. Our pupils also use pictorial representations. These representations can then be used to help reason and solve problems. Using both concrete and pictorial representations enables the children to understand abstract methods.

Children take part in explicit daily mathematics lessons with a specific focus on either Number or Measure, Geometry or Statistics. All areas of the mathematics curriculum are continually revisited through planned short or longer in-depth teaching sequences to enable children to develop a depth of understanding. At Manor Park Infant and Nursery School, we regularly give our children opportunities to use and apply their mathematical learning in everyday situations, aiming to embed mathematical skills across the curriculum.

Impact

The impact of our high-quality maths curriculum will develop children who are confident, keen and unafraid mathematicians who are equipped with a wealth of knowledge to draw upon to solve problems.

We measure how well we are doing by:

- Assessing our children's outcomes against the ELGs for EYFS and the end of Key stage 1 expectations for Y1 and Y2.
- Monitoring the work children do and their response and attitudes to learning.
- Speaking with children so that they can demonstrate their developing skills and knowledge and show what they know, can do and to check they remember more than they did before.

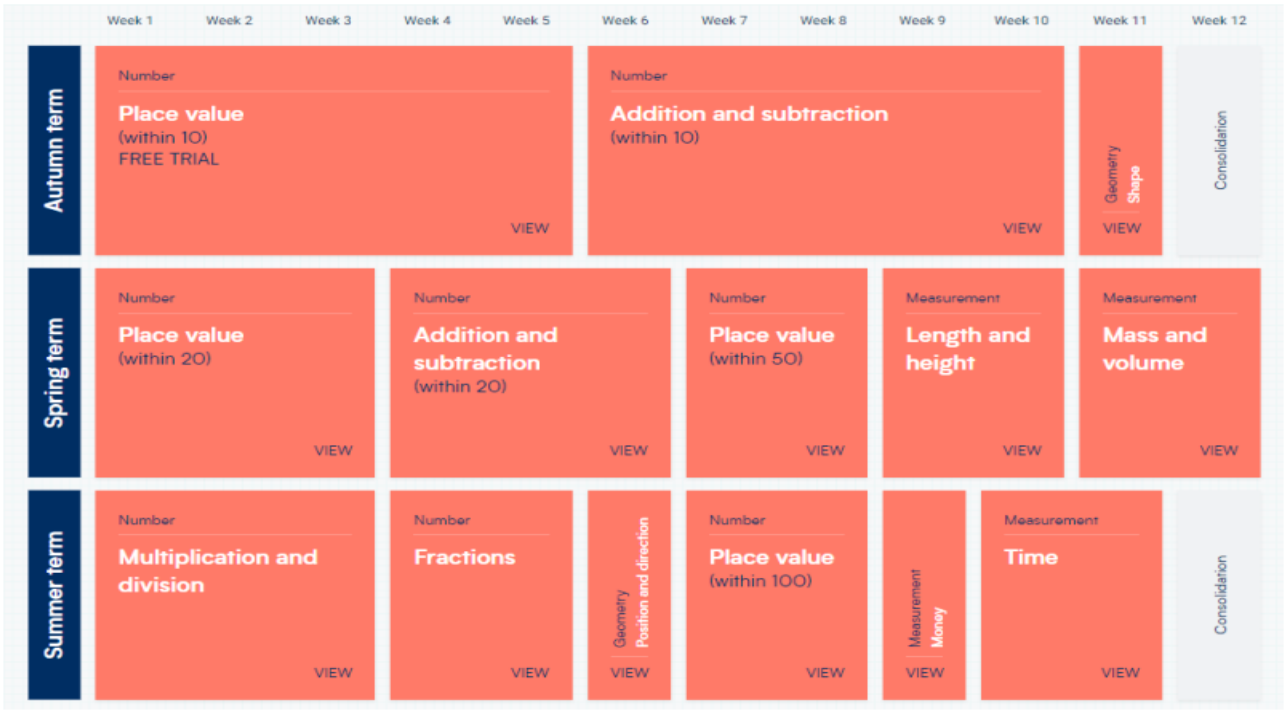
Maths: Unit by Unit

At Manor Park Infant and Nursery School we follow the Whiterose Maths Scheme. The following overviews describe the units we teach and the sequence.

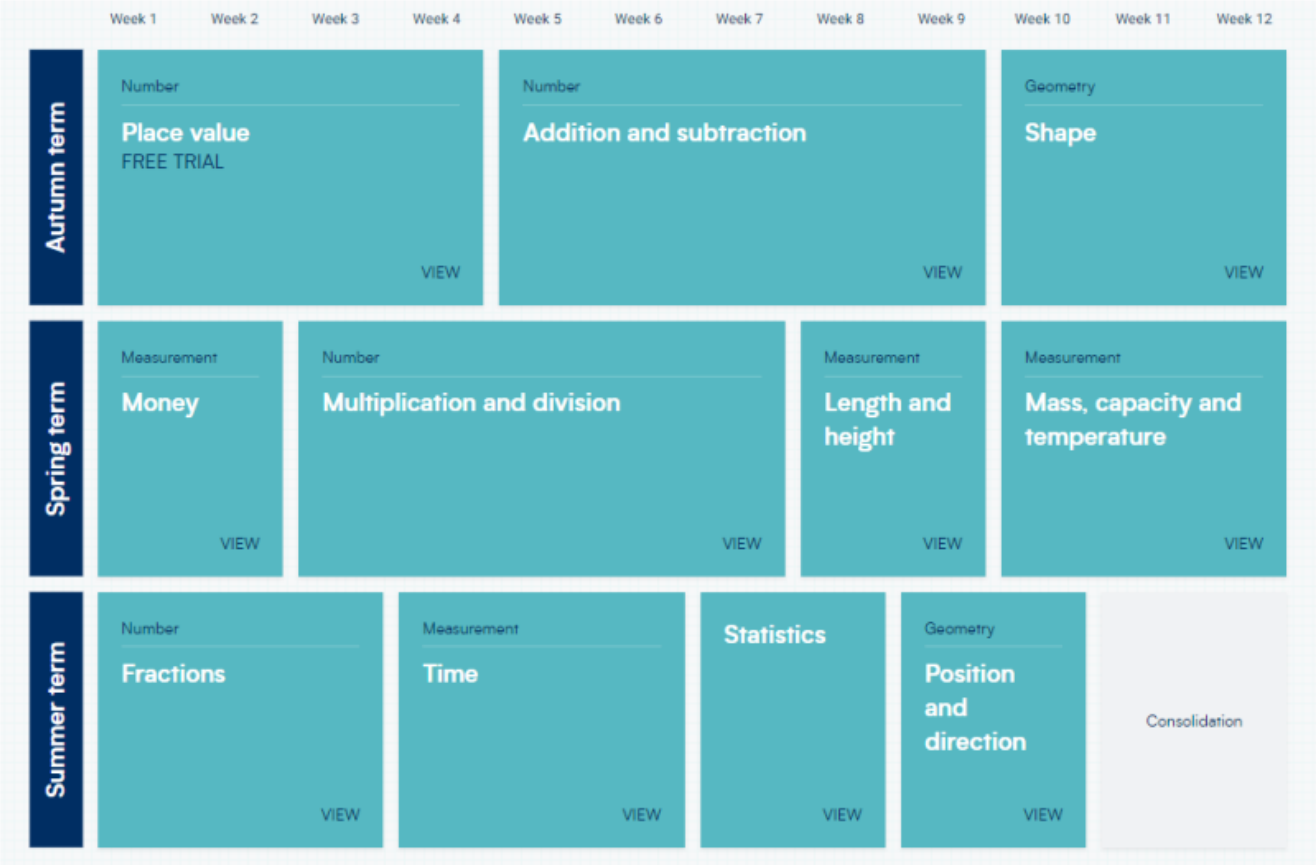
Reception

Each phase in reception has a number focus and links to measure, shape and spatial thinking.

Year 1



Year 2



Non-Negotiables

For each year group we have a set of non-negotiables. These are skills and knowledge that the children must know and understand by the end of each year. Please see the school website and appendix item 1 for the non-negotiables for each year group.

Class Room Expectations

For EYFS, Year 1 and 2 we have set expectations for the learning environment. Please see these expectations below:

Classroom Environment Expectations EYFS

Maths

Numbers 0-20 (Hundred Square in the Spring Term)
Basic 2D shapes names and outline
Double facts to 10
Number bonds to ten
Vocabulary relevant to unit of work
Real life photos of maths in action
Days of the week and months of the year
Vocabulary for adding and subtracting in the Spring/Summer term.

Classroom Environment Expectations KS1

Maths

- Hundred Number Square. Plus, associated vocab odds/evens/links to multiplications
- Key mathematical vocab relevant to the weeks/unit teaching (especially important when teaching concepts other than subjects)
- Times tables relevant to year group (access to if not displayed on cards/mats)
- Number bonds to 20
- Doubling/halving facts to 20
- Days of the week
- Place value chart
- Months of the year
- All 4 number operations words/signs/symbols e.g. add, total +

What are the key concepts in maths at our school?

Our 8 key concepts are:

Subject	Concept lens'	Explanation
Maths	Number	The first mathematical skills is basic number sense. Number sense is the order and value of numbers. A number is a mathematical object used to count.
	Pattern	A pattern is a repeated design or recurring sequence. This could be an ordered set of numbers, shapes or mathematical objects arranged according to a rule.
	Shape and Space	Shape and space refers to the properties of objects and the consequences of how these objects are positioned. Space is a set with added structure. Shape is the form of an object and how it is laid out in space.
	Measure	Measure is a number that shows the size or amount of something. Usually, the number is in reference to some standard measurement.
	Geometry	Geometry is a branch of mathematics concerned with questions of shape, size, relative position of figures and the properties of space.
	Statistics	Statistics is the study of collection, analysis, interpretation, presentation and organisation of data.
	Algebra	Algebra is a branch of mathematics dealing with symbols and the rules for manipulating those symbols.
	Reasoning	Mathematical reasoning is the skill that enables a learner to make use of all other mathematical skills. With mathematical reasoning, mathematics makes sense and can be understood.

How will we know the children learn well in Maths at our school?

How well do children learn in Maths?	Evidence
Pupils can use the knowledge and vocabulary they have learnt to verbally articulate their understanding. They show that they can retain facts.	Child-led Book Looks Pupil voice
Pupils can use knowledge they've learnt and transfer to a structured maths activity. Showing they can retain facts and show an understanding of their learning.	Work scrutiny Pupil voice
Pupils use homework and working walls effectively to show how they are building on prior learning and using current knowledge and vocabulary to develop understanding.	Work scrutiny Pupil voice Homework Displays
Pupils show a natural curiosity for problem solving.	Pupil voice Homework Classroom visits
Use of progression documents allows pupils skills to develop through year groups	Work scrutiny Pupil voice