

## The Maths Curriculum

### Intent

**The National Curriculum intent is for all pupils to:**

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. 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.

At Mark First & Pre-School CE Academy, we believe that acquiring a good understanding of the number system and the ability to quickly recall number facts is key to children gaining a deep understanding of the subject. We aim to support children in developing a love of maths by providing them with a wide range of practical opportunities to make sense of the mathematical world around them, from exploring patterns, to measuring in 'real life' situations to developing the ability and confidence to solve a variety of mathematical problems that require a deep level of thinking. We aim to plan high quality lessons that meet the needs of all children.



**The teaching of maths is underpinned by the NCETM's 'Five Big Ideas'**

### **Coherence**

Teaching is designed to follow small steps that develop a learning progression through the curriculum. This provides all pupils to develop a well rooted and connected understanding of mathematics that they can apply to a wide range of contexts.

### **Representation and Structure**

The representations used in our lessons are carefully selected by the class teachers. They aim to enable children to 'see' the maths rather than relying on representations as a tool to 'do' the maths. These representations become embedded for children to use when thinking about and discussing mathematics. In turn, this supports them to reach a deeper level of understanding mathematical structures and connections.

## Mathematical Thinking

Mathematical Thinking is central to how pupils learn mathematics and includes looking for patterns and relationships, making connections, conjecturing, reasoning, and generalising. Every maths lesson provides children with time to engage in mathematical thinking, allowing them the opportunity to discuss ideas using precise mathematical vocabulary.

## Fluency

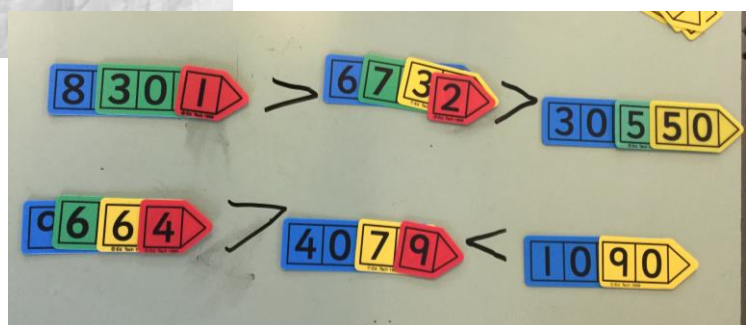
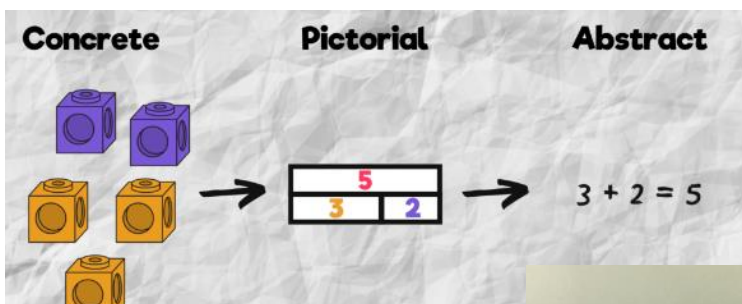
The ability to recall key number facts is essential for children to be able to move between different concepts and representations and to choose the most efficient methods to solve problems.

## Variation

Variation has two parts. It is firstly about how the teacher represents the concept being taught, often in more than one way, to draw attention to critical aspects, and to develop deep and holistic understanding. It is also about the sequencing of the episodes, activities and exercises used within a lesson and follow up practice, paying attention to what is kept the same and what changes, to connect the mathematics and draw attention to mathematical relationships and structure.

## Implementation

Our lessons in school allow children the time and experience of working through the concrete, pictorial, abstract process. (CPA) Using concrete objects is the 'doing' stage where children can model problems and have physical experiences of maths using equipment such as a base 10, numicon, place value counters etc. Pictorial is the 'seeing' stage using representations of the objects to model problems. This stage encourages children to make a mental connection between the physical object and abstract levels of understanding by looking at and/or drawing a range of representations such as part-part whole models, diagrams and images. Abstract is the 'symbolic' stage, where children are able to use abstract symbols to model problems without relying on concrete or pictorial representations.



Alongside our daily maths lessons, all children are given the opportunity to

develop their mathematical skills outside of the maths lesson. This allows them extra time to consolidate their recall of number facts or apply their confidence when solving calculations. We aim to develop maths in all areas of school life from counting the total of house points, to working out how much profit they have made during the enterprise week.



Maths is planned and taught through cross-curricular lessons so that children can make links between maths and science, food technology, geography, history and even art. Our beautiful outdoor classroom and natural environment are the perfect places when learning about maths outside. Through a range of games, challenges, discussions and problem-solving activities, the children gain confidence in their ability to think deeply, discuss their ideas with their peers and their teachers, work collaboratively and try out different strategies to solve mathematical tasks. We aim to support children to understand that making mistakes and overcoming them in maths, is just as important as getting the answer correct. We would like children to 'grow their brain' and believe that everyone can be a good mathematician.

During maths opportunities, children are taught and supported to think deeply through problems, apply what they already know and use equipment or make jottings to work through the task in hand. Children are given regular opportunities to develop their problem-solving skills and are encouraged to explain their reasoning and prove their answers to show their level of thinking. We see maths as a key opportunity for developing children's learning behaviours such as independence, resilience, curiosity, teamwork, pride and challenge.

### **Assessment**

The main focus of our assessment in maths is to ensure that all pupils are being provided with excellent provision every day. We assess the children through formative and summative assessments. Discussing and questioning children during lessons, marking their work and by observing their collaborative, paired and independent work all forms part of the formative assessment process. At the end of each unit taught, children are assessed against the EYFS or national curriculum objectives. Teaching staff then use this information to inform future teaching, plan interventions and further targeted support.

Termly pupil progress meetings are held to discuss each child's progress. Resources are then allocated to support the needs of the children. Monitoring of maths takes place via learning walks, discussions with staff,

book looks, lesson observations and pupil voice.

### Impact

Children are able to show their deep level of understanding of the subject through talking enthusiastically about their work using precise mathematical vocabulary. Pupils can independently apply taught concepts when solving problems and they can make links between maths and other areas of learning and subjects. Children are confident when recalling number facts and show an enjoyment towards making progress in this area.

Resilience and a growth mindset are evident when children talk about their learning and they take pride in their work.

