



### Park Maths Vision:

At Park Academy, we believe that **all children can achieve in Mathematics** and we do this by:

- Ensuring our children have access to a high-quality Maths curriculum that is challenging, enjoyable and fosters a real sense of curiosity.
- Providing our children with a variety of mathematical opportunities, which will enable them to make the connections in knowledge needed to enjoy a greater depth of learning.
- Developing fluency, mathematical reasoning and competence in solving increasingly sophisticated problems.
- Ensuring our children are confident, resilient mathematicians who are not afraid to take risks.
- Developing independent learners with inquisitive minds who have secure mathematical foundations and an interest in self-improvement.

We intend for our pupils to be able to apply their mathematical knowledge across the curriculum. We want children to realise that mathematics is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. As our pupils progress, we intend for our pupils to be able to understand the world, have the ability to reason mathematically, have an appreciation of the beauty and power of mathematics and a sense of enjoyment and curiosity about the subject.

We adopt a 'Teaching maths for mastery' approach in our classrooms. This is a research-based approach to maths teaching which stems from high performing Asian nations. When children are taught to 'master maths', they develop a deep, long-term and adaptable understanding of the subject. The whole class moves through the teaching of different mathematical concepts at broadly the same pace, yet each topic is studied in depth and the teacher does not move to the next stage until the children demonstrate that they have a secure understanding of them. Students are given time to think deeply about the maths and really understand concepts. This slower pace leads to greater progress because it ensures that students are secure in their understanding before moving on.

To embed mastery, the concrete, pictorial and abstract approach is adopted to ensure that the children have a secure understanding of number from an early age. Using this approach provides children with the opportunity to explore and demonstrate mathematical ideas, enriching their learning experience and deepening understanding. All pupils, when introduced to a key new concept, have the opportunity to build competency in this topic by taking this approach. They are encouraged to physically represent mathematical concepts. Objects and pictures are used to demonstrate and visualise abstract ideas, alongside numbers and symbols.

Such an approach ensures that the children have:

- a 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.
- *mastered* a mathematical concept or skill and are able to show it in multiple ways, using mathematical language to explain their ideas, they can then independently apply the concept to new problems in unfamiliar situations.

Teaching maths through a mastery approach 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. Those pupils who grasp concepts quickly are challenged through problem solving and reasoning, whilst those children who are not sufficiently fluent are provided with additional support to consolidate their understanding before moving on.

## Oracy and Vocabulary - 'Learning the Words to Learn'

Oracy plays a key part in maths lessons, as children are encouraged to talk about the processes they have used to reach their answers. This allows staff to identify misconceptions, which in turn moves learning forwards. Teachers will encourage and promote the use of correct mathematical vocabulary at all times and in context.

## Experiential Learning – Concrete, Pictorial, Abstract

Whenever new concepts are introduced, we use a range of maths manipulatives (objects) to aid pupil understanding by making maths 'concrete' as opposed to 'abstract'. As children gain in confidence with each of these concepts, they will use less manipulatives and be encouraged to use pictorial representations or other written methods to show their working out.

## Power Maths

Following the DfE (Department of Education) recommendations, Power Maths is used in Key Stage One to support the delivery of the National Curriculum as well as the whole-class mastery approach. This resource is written in partnership with White Rose Maths which ensures a smooth transition between KS1 and KS2. Power Maths is designed to spark curiosity and excitement, help nurture confidence and enable children to build upon their skills. It is taught sequentially and breaks learning into smaller steps to ensure that a deeper understanding is gained.

A typical structure for these lessons is:

- **Discover:** *Every lesson starts with a 'Discover' task which aims to generate curiosity through problem-solving. During this section the children use manipulatives to help them to understand the key concept; this aids them in articulating their method.*
- **Share:** *The next stage encourages children to 'Share' the methods they have tried to solve the problem in Discover.*
- **Think Together:** *We only learn when we are thinking! In this section Power Maths takes the approach "I do, we do, you do", as children apply the knowledge they have just learned in a series of problems that continue to encourage thinking throughout.*
- **Practice:** *Children are then ready for some independent 'Practice'.*
- **Reflect:** *The final 'Reflect' question helps the children evaluate whether they have understood the key concept and small step that they have been trying to master in the lesson.*

## Calculation Policy

Our calculation policy explains the approaches that we have to teaching addition, subtraction, multiplication and division and it shows how the methods change as children progress through the school, each year building on from the one before. It is modelled on the concrete, pictorial and abstract approach.

Adopting a common calculation policy within our school ensures that calculations will be taught in the same way from EYFS-Y6, thus developing their understanding of the subject as they move up through school.

As an Academy, we recognise the importance of fluent recall of multiplication and their associated division facts. To assist with the development of this, we explicitly teach each multiplication table at the age-appropriate stage and embed this through our daily teaching. Times Table Rockstars is used as an incentive-based programme to increase speed of recall.