MATHS
Park Junior School

Maths Curriculum Vision

We believe that by immersing children in rich ambitious mathematical experiences, we will create children who can calculate with efficiency and confidently demonstrate a deep understanding of mathematical concepts through their ability to reason and solve problems, ready for life's opportunities.

Principles of effective teaching:

- To ensure children develop deep and lasting understanding of mathematical procedures and concepts.
- Concepts will be broken down into smaller steps to gain a deep understanding of each building block required to understand the wider concept.
- Effective practice will ensure the relationship between the building blocks are explicitly modelled and shared with the children so they see maths as a continuum rather than seeing new learning as stand-alone procedures.
- A Concrete, Pictorial and Abstract (CPA) approach enables children to see the maths to understand it.
- High expectations for all learners to succeed.
- The key elements for effective practice that weave together within lessons are:

Key Elements for Effective Teaching					
Vocabulary and Discussion	Challenge for All	Use of Concrete, Pictorial and Abstract Representations	Variation	Reasoning and Problem Solving	Fluency and Arithmetic

Intention:

Our Maths curriculum enables our children to develop the mathematical expertise they need in the world that they live in so that they can flourish and reach their potential. Our children are given every opportunity to build their knowledge (Cultural Capital) and skills (Threshold Concepts) in Maths to enable them to be successful citizens in our ever-changing world; they are encouraged to develop their abilities of arithmetic, reasoning and applying to help in the world of further education, work and in their future lives.

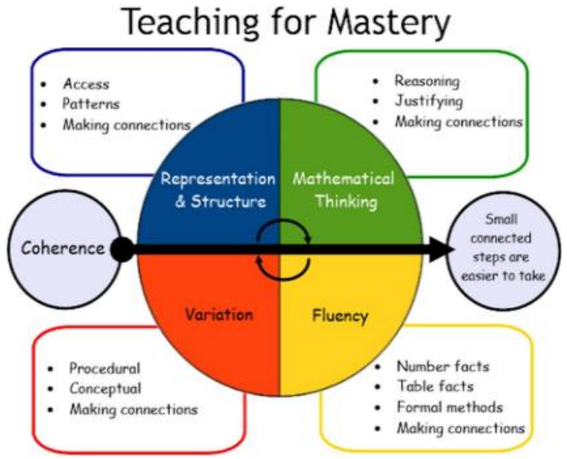
Our approach to Maths is ambitious and progressive for all learners and aims to develop children's resilience, perseverance, confidence in their own abilities and independence in their thinking, helping them become successful mathematicians, eager to learn more and build a love for the subject. We aim to offer rich and vibrant opportunities within the Maths curriculum which draw upon meaningful real-life experiences. In addition, through applying Maths in all areas of our curriculum, children will understand the wide application of their Maths skills alongside the focus on our curriculum drivers (community, emotional awareness, diversity) and what an important role this subject has to play in their overall learning journey.

We want our children to believe that everyone, with practise, inspiring teaching and hard work, can attain highly in maths. In addition, we aim to enable children to make connections within mathematics with the ability to reason, generalise and make sense of solutions. It is important that they develop the ability to see mistakes as valuable and an opportunity to learn and develop a wide range of mathematical vocabulary. They also need to develop a confidence in using efficient strategies when approaching problems and then understanding that the same strategy is not always the best strategy for every problem.

Our Maths curriculum is designed and taught with an understanding that the working memory is limited and that we can aid learning and the acquisition of the long term memory with regular repeated learning experiences over time.

What can you expect to see in a maths lesson:

- A well thought through retrieval or reasoning task allowing children to retrieve prior knowledge.
- Teachers have high expectations of mathematical vocabulary and teach this through direct instruction to then used on a regular basis.
- Introduction to new learning and how it builds on previous learning is explained.
- A breakdown of small steps to act as building blocks to support conceptual understanding. This enables children to make connections between different areas of their maths learning.
- Scaffolds are available to ensure all children can achieve and are challenged.
- Clear models of what is expected of children are explicitly shared throughout a session. This could be demonstrated on classroom working walls or in the delivery of the session.
- An emphasis is put on talk and comprehension.
- The CPA (concrete, pictorial, abstract) approach is used appropriately within a lesson or across a sequence of lessons to support understanding of all children.
- A small step approach to tasks to apply skills taught. Scaffolds provided for those who require it. Challenges available for all.
- Within every sequence of lessons there will be:
  - Fluency – This is encouraged to apply known facts to calculations and unknown situations/contexts. It enables children to spot patterns and make connections
  - Reasoning – This is encouraged as it allows children to think mathematically in order to solve problems in different ways, justifying which method is the most efficient and effective
  - Problem solving – Opportunities for children to solve problems should be provided for every learner, so they can build on their fluency and reasoning skills
- Misconceptions are pre planned and taught through lessons. If any arise they are immediately addressed.
- Feedback through monitoring in the lesson, marking, yellow highlighting and peer feedback.
- Children are expected to work in their books with a minimal reliance on photocopying and filling in boxes. This is to support their independence in mathematical thinking.
- Questions are planned to challenge thinking and to develop understanding and children are encouraged to explain their thinking.
- Conceptual variation, where mathematical features are presented in different ways to build children's flexibility with applying their maths and so then emphasis is put on children making their own choices and following their own working out strategies based on previous learning.
- The expectation that children will develop a secure knowledge of the multiplication tables.
- WRM flashback 4s are used frequently to support cognitive science on quizzes to help memory retention



Maths Curriculum Planning:

Long term maps have been created in conjunction with the National Curriculum to ensure a coverage of all areas of learning. The long-term maps provide an overview for what each year group will be teaching throughout the year for Years 3 – 6 and are designed to revisit maths topics within the year and build upon them, to follow the current cognitive science thinking. This is flexible as we plan based on the needs of the children in our classes and adapt learning to best suit different cohorts.

Medium term planning documents are followed to indicate termly units and to guide teachers to ensure small steps are taken.

We follow the White Rose Maths scheme and this is complemented by further quality resources, i.e. NCTEM and I See Reasoning. Planning is supported with high quality resources

Organisation and Structure:

- All classes have daily hour lessons
- Years 3 and 4 have an additional 3 x 15 minute sessions for multiplication practise.
- Years 5 and 6 have an additional weekly session for arithmetic.
- All lessons incorporate reasoning and problem solving.
- All classes have a minimum 10 minute daily multiplication fluency session.
- TTRockstars is used across the classes to enhance pupils times table knowledge and support home learning.

Assessment:

- Year 3 complete a school baseline when they enter the school in September to support their KS1 results.
- Years 3-5: NTS (National Test-style Standardised Assessments) and for year 6, past SATS are used as summative assessments. Outcomes are reported at data drops three times per year – (November, March and June). All statutory assessments are reported.
- Children working below age expected levels: assessed using appropriate year group assessments based on teacher judgements – this will be discussed with the maths lead.
- Multiplication check - Statutory assessment, delivered during June to year 4. Teachers assess through year towards this goal.
- Years 3 and 5 complete a NPAT multiplication check in June.