

Approach to teaching Mathematics

At Richmond Hill Primary Academy, we have adopted a mastery approach to the teaching and learning of mathematics over the past four years. This began when our school engaged and invested substantially in a programme that promotes consistency throughout school. Richmond Hill fully committed to the Mathematics Mastery approach which is based around extensive research conducted in the south of England and is directly related to practises in eastern Asia where Mathematics outcomes are regarded as the world's greatest. Further information around the research conducted can be found on the Mathematics Mastery Toolkit.

We believe that through embedding our core **CARE** values; **C**ollaboration, **A**spiration, **R**esilience & **E**ndeavour, we strive to ensure that our pupils become active, collaborative and resilient learners who will become life-long mathematicians and feel comfortable in using strategies that they are both confident in applying and efficient in using.

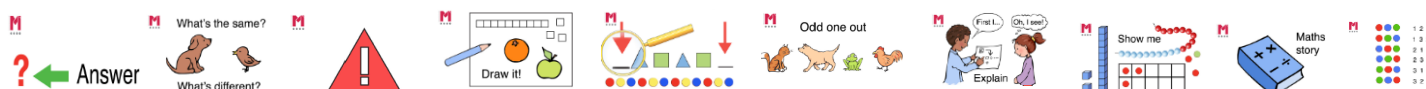
A huge focus within the programme is the correct use of language. Pupils are expected to respond to questions using full sentences that provide both a context to their Mathematics learning and a spring board to learning in other areas of the curriculum from the Early Years and upwards.

Richmond Hill recognise that the Mathematics Mastery programme is very much a professional development product rather than simply a 'scheme' for teachers to follow. Teaching and support staff throughout school acknowledge that their own subject knowledge has been significantly enhanced since engaging with this programme and whilst have 'faithfully adopted' the programme, have also 'intelligently adapted' to suit the needs of ALL pupils.

Planning

We plan our pupils' learning by designing coherent extended units of work in the medium term which take into account the relevant progressive elements of mathematics, particularly in calculation. Mathematical concepts across many elements are clearly linked to enhance understanding further. This allows our pupils to master the area of mathematics being studied, making effective use of the Mathematics Mastery summary materials, **before moving on to new learning**. We currently use Mathematics Mastery planning from Early Years to Year 5 and plan to fully extend this to Year 6 in the 2020-2021 academic year.

We adapt these plans to suit the needs of our pupils and often supplement materials from other quality sources. Many of these adaptations address opportunities for learning at greater depth. Pupils are presented with challenges that include verbal reasoning with the crutch of using manipulatives and others offer a varied slant on the original learning intention. These are recorded by combining a range of 'ideas for depth' stickers in each lesson for all pupils and support the **Concrete, Pictorial and Abstract** mathematical ideas.



Mixed Ability Grouping & Intervention

At Richmond Hill, we believe that teaching pupils in a mixed ability environment enables quality and collaborative learning where all pupils are expected to achieve age-related expectation. High quality interventions are utilised where significant gaps are identified but a strong ethos of **'Keeping up, not catching up'** is maintained amongst all staff. Kagan structures are used throughout our school to encourage collaborative learning ensuring that every pupil is fully engaged & expected to contribute within all lessons.

We believe that ALL pupils should have the opportunity to succeed. Pre-learning and same day intervention sessions are planned & delivered when the teacher identifies a requirement for this type of support. This may include; preparing groups of pupils to access learning at an equivalent level or simply revisiting learning at the end of the day where misconceptions have been identified within their Mathematics lessons.

Meeting pupils' needs

At Richmond Hill, we aim to ensure that all pupils move together throughout their learning in order to avoid gaps in understanding that may formulate. Therefore, we do not differentiate by activity, all pupils will experience the same activity, learning is differentiated through the amount of support that a pupil receives, scaffolding or presenting pupils with constraints within their learning. **All pupils will be given the opportunity to experience learning at a deeper level / challenge their learning at all stages of each lesson.**

We also deliver a **15 minute daily Maths Meeting** which reinforces relevant areas of the Maths curriculum that have already been taught and ensures 'over learning & repetition' These meetings focus on language, full sentence responses and encourage pupil-teacher, pupil-pupil partnerships. They progress at a very swift pace, provide greater depth questioning and have proven high impact on learning in short spaces of time.

Pupils' work & feedback

The learning that can be seen in pupils' books will demonstrate fluency, reasoning and problem solving. It will also demonstrate the key Mathematics Mastery principles, known as '**Dimensions for Depth**' – (i) **Mathematical Thinking**, (ii) **Conceptual Understanding** and (iii) **Language & communication**. Recording in books may include; completed Mathematics Mastery worksheets, photographs, written working out (conceptual, pictorial & abstract examples) and other educational sources. Teachers endeavour to mark pupils' work within the lesson and give daily verbal feedback. Pupils are expected to respond to feedback verbally or using a green pen (where this is age / ability appropriate).

Parental Involvement

Richmond Hill have worked closely with parents to share the updated strategies and language used within pupils' Maths learning. We invite parents into school to update them on any changes / updates and see a lesson in practise on a regular basis and welcome their feedback. School have also invested in an engaging home-learning scheme that encourages further language progression and supports new learning in class. Richmond Hill boasts extremely high registration levels and households engage weekly in a new concept using everyday items (as manipulatives) that can be found around the house. Parents then respond by making comments and sharing photographs.



Assessment

At Richmond Hill, assessment takes several different forms. Within each lesson, formative assessment takes place and is integral to our mastery approach. Teachers utilise targeted questioning to test pupils' understanding and supports the identification of any intervention requirement. We also carry out summative assessments in the form of testing at regular times of the academic year within our school's monitoring and evaluating cycle. This helps teachers to analyse areas of the Mathematical curriculum that may require further teaching and/or support. This also prepares pupils to positively engage in and complete regular summative testing without a feeling of 'panic' at all ages.

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