

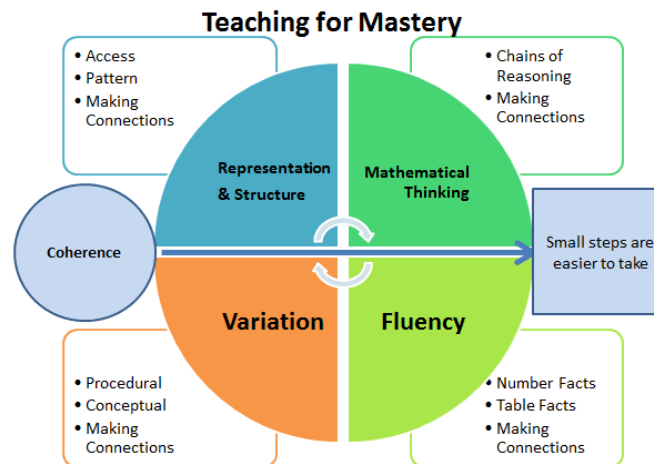
Maths

The purpose of Charlton's mathematics curriculum is to guarantee long-term learning for all children, regardless of need or background. It aims to ensure that all pupils become fluent in the fundamentals of mathematics, and in number, so that they develop a solid conceptual understanding as well as the ability to recall and apply knowledge rapidly and accurately. We believe that all pupils can make progress in school and aspire for children to enjoy and grow in mathematical confidence. We teach the English National Curriculum for mathematics and use White Rose Hub and the Mastering Number Programme (Early Years and Key Stage 1) as a vehicle for delivery. Our philosophy is to foster persistence and determination through a growth mindset approach; we want our children to understand that mistakes are a good thing and can be a helpful part of the learning process. Whole class mastery maths teaching enables us to develop our children's mathematical vocabulary, knowledge and understanding and provides all children with the opportunity to access all areas of the mathematics curriculum.

We believe that a sequentially mapped curriculum focusing on fluency of key number facts for long term memory allows children to use working memory for the new concepts and skills being introduced, leading to clear end points. We want pupils, not only to be able to recall number facts and be great arithmetic operators, but to be able to problem solve and reason with a variety of mathematical problems. By building mathematical vocabulary through explicit teaching and rehearsal from an early age, we expect to fill gaps, reflecting our school's local context, and build on already existing knowledge pupils have already obtained earlier in life. We intend to help pupils understand the world around them by providing life enriching skills that are vital for sustainable lifestyle choices and future careers.

Teaching For Mastery

In September 2022, our school has joined the “Teaching for Mastery” work and research group of the Kent and Medway Maths Hub. Our maths subject leader and a KS1 teacher are using this collaborative development opportunity to develop best practice in maths in our school. This entails regular meetings with teachers from other schools and a Primary Mastery Specialist to plan, observe and discuss teaching for mastery. In between meetings, our teachers explore mastery approaches in their Year 1 and Year 5 classrooms, with the view of implementing them across the whole school from September 2023. Children in Early Years and Key Stage 1 are starting the ‘Mastering Number’ program in Autumn 2023. All classes are taught using the whole class, mastery approach.



| <u>Intent</u> | <u>Implementation</u> | <u>Impact</u> |
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| <ul style="list-style-type: none"> • To ensure that every pupil, regardless of background, has a rich and meaningful mathematics education • To ensure pupils view mathematics positively and relevant to their daily life • To enable pupils to participate fully in society and the democratic processes • To enable pupils to become part of a numerate workforce • To develop mathematical mastery by ensuring that all children achieve long-term, deep and adaptable understanding of mathematics, which they are able to apply in different contexts • To develop pupils ability to solve problems, to reason, to think logically • To develop the ability to work systematically and accurately • To enable all pupils to experience hands-on learning when discovering new mathematical concepts • To make concrete resources available for pupils of any attainment and to encourage their use • To provide clear models and images to aid understanding • To use mathematical language confidently • To challenge and encourage all pupils to excel in mathematics | <ul style="list-style-type: none"> • Core maths facts are embedded at an early age (Mastering Number) and revisited through all year groups (KIRFS, Flashback 4, times table work) to consolidate learning and to embed concepts into our children's long- term memory • All children receive a daily maths lesson, although mathematical skills run through many other areas of the curriculum. • All year groups use White Rose for a clear learning sequence which builds on prior learning and the development of new skills, which are repeated within the year and beyond – often revisiting previous year learning, to start with, ensuring core facts are secure before moving on. Teachers use White Rose schemes of learning flexibly, adapting the length of time they need for steps in learning according to the needs of their children. • Other resources are used to support teaching, learning and knowledge retention as needed. • Each lesson focusses on one clear learning objective • Teaching maths for mastery offers all pupils access to the full maths curriculum. The same lessons are taught to the whole class to ensure equity of learning. This allows problem solving and reasoning to be taught explicitly to all pupils and not just those who become fluent at a faster rate. • Pupils' difficulties and misconceptions are identified through immediate formative assessment and addressed in the lesson and through small group interventions | <p>Regular revision of fluency questions have led to greater retention of core concepts and are beginning to reduce working memory overload in class.</p> <p>This has allowed pupils to make smoother progress in lessons and has had an impact on their arithmetic scores. Subsequently, this leads to better comprehension within reasoning and problem solving.</p> <p>All pupils, regardless of background or needs are becoming more able to articulate their maths thinking using mathematical vocabulary.</p> <p>Our children are more adept at sharing a range of ways in which questions can be answered.</p> <p>They're becoming more efficient mathematicians as they discuss what they think is the most effective method to solve a problem.</p> <p>Our children are receiving a solid grounding in mathematical vocabulary, knowledge and skills. Consequently, all pupils, including those that are disadvantaged and pupils with SEND, acquire the knowledge and cultural capital they need to succeed in life and will be ready for the next stage of their education and their future careers by the time they leave Charlton.</p> |

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| <ul style="list-style-type: none"> • To provide a well-structured curriculum that draws on, and makes links with, previously acquired knowledge • To ensure all learners access reasoning and problem solving activities • To support every learner, no matter what level of attainment to master the mathematics curriculum and to challenge themselves • To ensure all teachers are confident in following the White Rose approach, including the 'Concrete, Pictorial, Abstract' approach and bar-modelling • To foster resilience • To foster ambition • To support staff with teaching mathematics at Charlton | <ul style="list-style-type: none"> • Each lesson should include elements of: revision, to remember what we learned previously; new learning, to expand what we know; concept fluency, to practise skills; reasoning, to deepen understanding; and problem solving, to apply skills depending on the objective being taught and the understanding of the children. • Concrete, Pictorial and Abstract (CPA) approach is used to introduce new concepts and make links to prior learning allowing all pupils regardless of needs and background can access maths. • Reasoning is taught by focusing on key mathematical vocabulary that is then incorporated into well-written stem sentences which are rehearsed by the whole class within a variety of different contexts. • Flashback 4 exercises revisit mathematical concepts daily. Weekly times table and arithmetic tests are conducted with the aim of aiding knowledge retention and fostering fluency in key instant recall facts. • The TimesTable Rockstars program is used for weekly homework and children and parents are encouraged to revise the termly KIRFS. • Children are encouraged to see a connection between mathematics learning at school and life: the whole school celebrates NSPCC Number Day and takes part in Times Table Rockstar competitions; children have the opportunity to use their mathematical knowledge in competitions between all Aquila schools, using the Emile program. Y6 children work on an economic budgeting task and other year groups use maths in cross curricular lessons, such as statistics in science or using principles of symmetry or shape during art lessons. | |
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| | <ul style="list-style-type: none">• Mathematics is incorporated in outdoor learning activities• Informal assessments are conducted at the start and end point of each teaching block, using White Rose Maths assessments. This enables teachers and the children themselves to see a clear improvement in their knowledge and understanding and any gaps in learning can be addressed.• Summative assessments are conducted three times a year, using PIXL tests. The test data provides teachers with a gap analysis for their class, making sure that children's needs are identified and addressed | |
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