

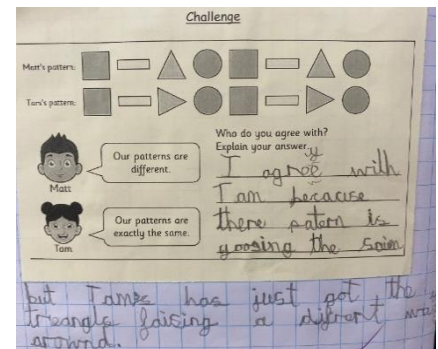
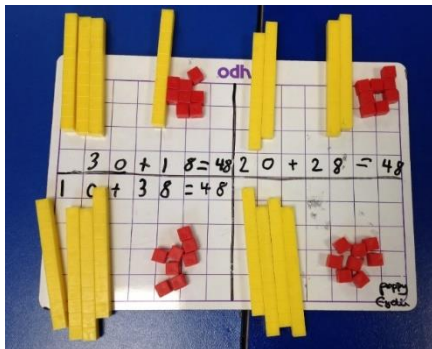


Mathematics

“The whole and wholesome development of each child in a happy, caring and stimulating learning environment”

Together we grow and learn

May Bank Infants School Mathematics Curriculum Intent Statement



Intent

At May Bank, we deliver the National Curriculum and provide a Mathematics curriculum which meets the needs of all children and sets them up with the necessary attitudes, skills and knowledge to become successful in their future lives as well as providing a curriculum which.

We want all pupils at May Bank to experience the enjoyment of mathematics and develop a sense of curiosity about the subject, as well as understanding the place of mathematics in the 'real world'. We foster a positive 'can do' attitude and we promote the fact that we are all mathematicians and can all do mathematics. We believe all children can achieve in mathematics and we strongly believe that that there should be no ceiling to learning. We strive to engage children through providing engaging lessons and contexts relevant to the children's interest, but particularly through using active approaches which engage the whole child more fully in their learning, such as active counting starters, get up and go games and BBC Supermovers.

We teach for secure and deep understanding of mathematical concepts through progressive and challenging tasks. Mistakes and misconceptions are considered an essential part of learning and teachers help children to view them as such. We believe that all children should be given the opportunity to be sufficiently challenged and explore their mathematics more deeply. As such any child, no matter their current attainment, will receive extra challenges giving them the opportunity all apply their mathematical learning in a range of different situations and contexts if they reach a good understanding of the current mathematics learning.

We aim to ensure that all pupils become fluent in the fundamentals of mathematics and develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.

All children need to be given frequent opportunities to reason, prove and problem solve and sometimes children will need to be explicitly taught how to tackle problem solving situations and 'scaffolded' or guided through the process, including breaking problems down into smaller steps or identifying a starting point in order to allow the child to develop confidence and experience success. Children should also be given opportunities to work collaboratively, both with their peers and adults, in order to support the development of 'mathematics chatter' and develop their mathematical vocabulary, give them opportunities to reason verbally and to support each other when tackling problems. This also supports the development of the whole child and provides children with opportunities to develop wider personal and social skills beyond the mathematics curriculum which they can then also utilize in other curriculum areas. Children should also be given opportunities to apply their mathematical learning across the curriculum and opportunities to make connections between different curriculum areas should be identified and exploited.

They will be able to reason and problem solve by applying mathematics to a variety of increasingly complex problems. In EYFS children will develop early number skills and this knowledge and understanding will be built upon in Key Stage 1. We want children to develop a deep and embedded understanding of number as well as a confidence and resilience that enables all children to reason and problem solve with increasing confidence.

Implementation

Our whole curriculum is shaped by our school vision to develop the whole child which aims to enable all children to develop their individual talents, realise their potential and aspire to become the very best they can be, regardless of background or current attainment. We teach the National Curriculum using the White Rose Mathematics which follows a mastery curriculum to support, but not drive, our planning and teaching. White Rose scheme mathematics sequences have been designed to support our teachers to deliver a carefully planned progression that ensures continuity and consistency and builds on prior learning. Lessons may be personalised to address the individual needs and requirements for a class but coverage is maintained. We also use a range of other planning resources including those provided by the NCETM and NRich to enrich our children's mathematics diet. Teachers plan daily mathematics lessons which include fluency, reasoning and problem solving tasks. Teachers use ongoing formative assessment to ensure that those meeting expectations of the task and those who require more support or challenge are visible to any adult in the room. This allows for intervention within the lesson through responsive teaching. Gaps arising are dealt with through additional targeted support and intervention, which takes a variety of forms in order to meet the needs of the child or children involved but could include additional individual or small group booster sessions with a teacher or teaching assistant, precision teaching of number facts, pre-teaching of mathematics concepts, or the use of ICT resources. Those who are ready are further challenged at the point of teaching and given opportunities to apply their learning in a variety of reasoning and problem solving contexts. In addition to this problem solving is explicitly taught and broken down into smaller steps. Through our teaching we continuously monitor pupils' progress against learning objectives for the lesson and against year group tracking grids in the longer term to monitor progress against expected age related attainment. Summative assessments are completed at the end of each half term and their results form discussions during pupil progress meetings and support staff to identify gaps in learning and areas to prioritise. Data from termly PUMA tests feed into these assessment judgements.

The school follows a Concrete, Pictorial, Abstract approach to the teaching of mathematics. A wide range of concrete manipulatives and mathematical resources are used before moving into pictorial representations and only when children have grasped a concept using concrete equipment do we move and more abstract pictorial representations using images and diagrams before then moving into more abstract approaches. This is in order to support

conceptual understanding and to help make links across topics as abstract mathematics relies on the children understanding a concept thoroughly and being able to use their knowledge and understanding to visualize a concept. Children are encouraged to select their own equipment, as well as draw or use 'jottings' in order to help them find a solution. An emphasis is also placed on children becoming proficient and confident using a range of approaches and strategies but then selecting the most efficient strategy when faced with a particular calculation. Our school calculation policy clearly and progressively sets out the strategies that we teach.

We set high expectations for all children to aim to achieve age related expectations and for a significant number of children to go further and work at Greater Depth within the subject. There is no single lesson format at May Bank, teachers use their professional judgement to decide the most appropriate format for teaching based on the concept being taught and what their assessment tells them about their learners and lessons are differentiated where appropriate to ensure there is appropriate challenge for all learners.

Children at May Bank are taught to reason mathematically by noticing, spotting patterns, finding connections and establishing relationships whilst using appropriate mathematical language. Children are taught to solve problems by applying their mathematics to a variety of simple and more complex problems with increasing confidence, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Through Can you still ...?, BBC Supermovers and daily mathematics blasts children are given regular opportunities to practice, recap and develop fluency in mathematics skills. Online learning platforms such as Mathematics Shed are used to support key skills for home learning activities and also during the school day. Both formative and summative assessments (PUMA, White Rose Assessments and Statutory End of Key Stage tests) are used to assess children on a termly basis and to inform teaching. Across school we use our developed scheme of Mathematics Passports to help practise and embed key number facts and skills and also as a way of helping parents to become more confident in knowing how to support their child at home.

Teachers plan activities using a range of approaches suitable to specific tasks but a strong emphasis across the school is placed on collaborative approaches in order for the children to work together to develop confidence and share ideas when exploring new strategies or working on solving problems. The use of talking partners is also embedded in all classrooms; children are frequently given opportunities to rehearse responses with a friend and to use 'mathematics chatter' in order to practise and apply their developing mathematical vocabulary, which is constantly modelled by adults and highlighted in the classroom. Children are taught to explain their ideas and methods and to develop their verbal mathematical reasoning skills. Teachers provide a vibrant, mathematically rich learning environment in which learning prompts are displayed, refereed to and highly valued as a resource to support children's learning.

Whenever possible, links are made with other curriculum areas and children are given opportunities to apply mathematical learning across the curriculum, for example measuring in science or using timers in PE. Children are also given opportunities to use mathematics in real life situations, for example visiting Asda to use money to pay for ingredients for a Design and Technology project or learning about money when organizing and paying for toys at our annual toy sale.

We invite parents into school to take part in mathematics lessons and parent workshops in order to further develop parents' confidence and knowledge and we use mathematics homework not only to give the children to practise, reinforce and apply skills learned at home but to also keep parents informed about the learning which is taking place in school. We also provide

parents with resources for children to use at home (for example number lines, counters, Base 10) to support their learning.

Impact

By the end of KS1 our children are fluent in the fundamentals of mathematics, with the ability to recall and apply knowledge rapidly and accurately. Well planned sequences of learning support children to develop and refine their mathematics skills. They have the skills and the resilience to solve simple problems by applying their mathematics to a variety of situations. As a result of the Concrete, Pictorial, Abstract approach that we follow the children have a deep, embedded conceptual understanding of concepts before moving too quickly into the abstract, and consequently the children have then have a better understanding when eventually faced with more abstract concepts. As a consequence of this children secure embedded, deep and adaptable understanding of mathematics which they are then able to apply in different contexts. The vast majority of children reach end of year or end of key stage expectations and a significant number exceed this, which is demonstrated by the data from our statutory end of Key Stage assessments (EYFS and KS1) as well as the termly PUMA tests that we complete in school.

Most importantly, children enjoy mathematics and are happy and confident to participate in mathematics activities.

**“The only way to learn mathematics is to do mathematics”
Paul Halmos**

**“Mathematics is not about numbers, equations, computations or algorithms, it is about understanding.”
William Thurston**

**“Good mathematics is not about how many answers you know... It’s about how you behave when you don’t know.”
Author Unknown**

