

**Mundella Primary School**

**Maths**

**Intent**

At Mundella Primary School we follow a maths mastery approach. We aim to promote children’s curiosity and enable them to safely take risks and learn from first-hand experience wherever possible. Our primary focus is to support all children to become fluent in mathematical understanding from the most basic level so that they can build upon their own understanding. We aim to enable our children to develop conceptual understanding, recall number facts and patterns and to apply their knowledge rapidly and accurately. We promote children’s ability to reason through opportunities to discuss their thinking and understanding. We aim to promote problem solving and solution finding.

Mastering maths means pupils acquiring a deep, long-term, secure and adaptable understanding of the subject. The phrase ‘teaching for mastery’ describes the elements of classroom practice and school organisation that combine to give pupils the best chance of mastering maths. Achieving mastery means acquiring a solid enough understanding of the maths that has been taught to enable pupils to move on to more advanced materials.

**Implementation:**

To support our Teaching for Mastery we have embedded the new scheme of learning by White Rose Maths Hub across the school, adapting it where appropriate to suit the needs of our classes. The scheme has been designed to support the aims and objectives of the National Curriculum. White Rose provides teachers with blocked units, offering greater time frames to deliver and explore the objectives in. These blocks are further broken down into small steps, giving children the opportunity to take more time to develop their understanding. Lessons will promote fluency, reasoning and problem solving with all children being given the opportunity to achieve and experience these.

In EYFS, the children develop the concept of maths mastery through maths talk, practicing the skills they've learned during play, and developing number sense. We support our children to achieve mastery in the early years by making activities fun and part of our daily routine. Maths in EYFS is delivered through the key concepts, which underpin our early mathematics curriculum. The six key areas of early mathematics learning, which collectively provide firm foundations for everything children learn as they progress through school. These key areas are: cardinality and counting, comparison, composition, pattern, shape, space and measures. We use number rhymes and songs on a regular basis and teach maths daily using the White Rose scheme of learning as a basis for adaption to suit the particular needs of the children. Through the provision of topic linked challenges and access to maths equipment, additional practice linked to the current class core learning is promoted and encouraged during child-initiated activities.

At Mundella, where possible, the whole class is taught maths together and moves through topics and concepts at broadly the same pace. We spend more time on key topics and concept to ensure learning is well developed and deeply embedded before moving on. We believe that the vast majority of children can succeed in learning mathematics in line with national expectations. The learning needs of individuals are addressed through careful scaffolding, questioning and appropriate intervention where necessary, to provide the appropriate support and challenge. Same day intervention is used in Guided Learning sessions to support slower graspers and to address misconceptions. We challenge children by asking them to explore concepts deeply through verbal reasoning and problem solving tasks.

At Mundella, we use our Off Plan Weeks and Outdoor Learning lessons to provide opportunities for children to understand and experience mathematics in other areas of the curriculum and in life.

**Calculation Policy**

Our Calculation Policy follows White Rose and illustrates how we teach children the four operations (addition, subtraction, multiplication and division) using the CPA approach.

We use the CPA (concrete, pictorial and abstract) approach to support out teaching of
mathematics. The children are given concrete apparatus (things they can touch, hold and manipulate) and visual representations (things they can see) to help them visualise and internalise mathematical concepts. This allows them to access, conceptualise and solve problems. Through the use of these apparatus and representation, our pupils gain confidence as independent learners to use resources and solve problems. Here is more detail on the CPA approach:

**Concrete Representation:** Children first introduced to using objects.

**Pictorial Representation:**When a child has understood the ‘hands-on’ experience, they can now relate them to representations such as a diagram or picture.

**Abstract Representation:**The child is now capable or representing problems using mathematical notation.

Without the ‘hands on’ and pictorial steps, this can be very hard for children to understand.

**What would you see in a typical maths lesson?**

* Flash back four for retrieval practice at the start of the lesson (Y1-6)
* A clear learning journey
* The majority of the class working on the same small step of learning at a pace that suits them.
* During the lesson key vocabulary and key questions are shared and the children are encouraged to use specific mathematical language using full sentences. Knowledge Organisers maybe used to support the learning or key vocabulary.
* Sentence stems are used to support children in explaining their mathematical understanding.
* Pre-teaching sessions prior to the lesson to support understanding.
* Activities which promote children’s fluency of number and their reasoning and problem solving skills.
* A range of manipulatives being used to explore key concepts. All children expected to explore these either to support understanding or to explain their understanding.
* For children who are struggling to grasp the concept adults will support in class either individually or as part of a guided teacher group.
* During lessons pupils are confident and free to share their ideas in a safe, supported space and understand the importance of making mistakes as part of their learning journey.
* Closing the gap sessions are provided for children during Guided Learning who require additional support to grasp or revisit a concept so everyone has the chance to excel.
* Children who grasp mathematical concepts more rapidly are given the opportunity to deepen their understanding by attempting additional challenges. These activities are carefully designed problem solving challenges that encourage children to use and develop their mathematical skills, such as the ability to deduce, conjecture, reason and prove their understanding.

**Formative Assessment**

Assessment is integrated into our maths lessons. Teachers and teaching assistants give verbal feedback throughout the lessons to support or challenge children. Teachers have a clear idea of what has been mastered and what each child’s next steps are. Planning is responsive – teachers plan to meet children’s gaps on a daily, weekly and termly basis. Flashback fours are used to revisit learning from previous weeks or terms to ensure that it has ‘stuck’. At the end of each blocked unit of work, the children also complete the carefully aligned White Rose Maths ‘End of Unit Assessment’. The outcome of this is used by the teacher to ensure that any identified gaps in understanding can be addressed before the next unit is taught. Each child’s scores are also input on a class spreadsheet, which provides an overview of achievement in each specific area within the programme of study. This also informs dialogue with parents and carers during parent’s evenings, as well as the judgements made at the end of the term as to the extent that each child has achieved the expectation for their year group.

**Summative Assessment**

Teachers administer a termly arithmetic paper and reasoning and problem-solving paper which. The results of these papers are used to identify children’s ongoing target areas, which are communicated to the children, as well as to parents and carers at Parent’s Evening. They are also used alongside the end of unit assessments and outcomes of work, to inform the whole school tracking of attainment and progress of each child. Assessment data in maths is reviewed throughout the year to inform interventions and to also ensure that provision remains well-informed to enable optimum progress and achievement. End of year data is used to measure the extent to which attainment gaps for individuals and identified groups of learners are being closed. This data is used to inform whole school and subject development priorities for the next school year.

**Equal Opportunities**

The school is committed to ensuring the active participation and progress of all children in their learning. All children will be given equal opportunities to achieve their best possible standard, whatever their current attainment and irrespective of gender, ethnic, social or cultural background, home language or any other aspect that could affect their participation or the progress of which they are capable.

**Inclusion**

Taking a mastery approach, differentiation occurs in the support and intervention provided to different children, not in the topics taught, particularly at earlier stages. There is little differentiation in the content taught but the questioning and scaffolding individual children receive in class as they work through problems will differ, with higher attainers challenged through more demanding problems, which deepen their knowledge of the same content before acceleration onto new content. Children’s difficulties and misconceptions are identified through immediate formative assessment and addressed with rapid intervention – commonly through individual or small group support in Guided Learning sessions or within the lesson.

A range of inclusion strategies, disseminated by the SENDCO, are embedded in practice and teachers are aware of the special educational needs of the children in their Maths class, as well as those who have English as an additional language. Although the expectation is that the majority of children will move through the programmes of study at broadly the same pace, the 2014 National Curriculum states: ‘Decisions about when to progress should always be based on the security of children’s understanding and their readiness to progress to the next stage.’ If a class teacher feels a child is not ready to progress then the child will undertake a Sandwell Assessment to identify key areas the child needs to develop securer understanding in. The child may then be provided with a White Rose Maths Workbook to support their learning in the areas that have been identified. This alternative plan, including coverage of the content from a previous year, will be overseen by the SENDCO, in collaboration with the class teacher and with the knowledge of SMT. Specific arrangements for the provision of children with SEND will be communicated to parents and carers during SEND reviews.