



Edward Feild Primary School MATHEMATICS in a Nutshell



RESEARCH	At EFPS, we believe that mathematics is essential to everyday life, critical for most forms of employment and providing a foundation for understanding the world. We intend to provide children with a Mathematics curriculum that promotes a sense of enjoyment and curiosity about the subject and prepares children to become confident individuals, developing their mathematics skills to their full potential.
VISION	The school's vision for mathematics ' <i>... rejects the idea that a large proportion of people 'just can't do maths' and aligns with the belief that by working hard at maths they can succeed</i> '. NCETM, 'The essence of Maths Teaching for Mastery' (2016).
CURRICULUM OVERVIEW	<p>We have embedded a mastery approach in the learning and teaching of mathematics throughout the school. The main aim of such an approach and development of a curriculum model that values 'going deeper' is to ensure that our children develop a secure knowledge of mathematical concepts, so that those pupils beginning their education at school can access age-appropriate ideas and do not see gaps open in their learning over time.</p> <p>Despite having developed a mastery approach in the learning and teaching of maths, we are aware that some children will have gaps in their pre-requisite knowledge and therefore our long-term and medium-term planning takes this into account. Longer periods of time are spent on each topic as mastery is an integral part of the system. Pupils progress through curriculum content at broadly the same rate, although in-class support, intervention, and broader opportunities, including pre- and post-teaching, are provided to move groups of children on so that they can:</p> <ul style="list-style-type: none">• Grasp concepts and methods, e.g., through varied use of practical equipment for low attainers• Be challenged through exposure to greater depth in their learning, e.g., through tackling more complex problems in different contexts for high attainers and rapid graspers of concepts. <p>As a result, differentiation is sometimes likely to appear more subtle, through support and scaffolding, use of resources, questioning and outcome. Sometimes differentiated activities, such as 'Mild', 'Spicy' and 'Hot'</p>

	<p>tasks, are used to ensure children can grasp concepts and methods or are challenged through exposure to greater depth.</p> <p>Practice and consolidation play a central role in pupil's learning experiences. Although the 'pace' in lessons may appear to be slow, this could mask development of deep understanding of mathematical concepts through use of small steps. Further challenge is provided to all children through use of reasoning and problem solving, which may or not be linked with real-life context.</p> <p>All the above decisions taken in terms of the curriculum design and learning/teaching are inextricably linked to necessary Continued Professional Development for teaching staff. The school's Senior Leadership Team ensures a range of CPD is made available for staff, which means that increasing consistency is achieved across Years 1-6, whilst EYFS are starting to develop a mastery approach, adopting mastery teaching strategies.</p>
<p>IMPLEMENTATION</p>	<p>We believe all pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in increasingly sophisticated problem solving. Developing these three strands underpins all our maths teaching.</p> <ol style="list-style-type: none"> 1. Reception have recently started a mastery approach in maths using concrete, pictorial and abstract strategies, in line with the new EYFS Framework. 2. Key Stages 1 and 2 use White Rose Maths Hub resources to support the mastery approach. Other mastery documents used throughout the school include NCETM Mastery documents, Third Space Learning and Classroom Secrets resources. These are used at the discretion of each teacher to supplement the White Rose scheme. 3. Overviews for each year group, End of Units Blocks and End of term Assessments can be found on the White Rose website. 4. The calculation policy is followed so that the children have continuity in procedures and we ensure that the pitch of concrete, pictorial and abstract approaches is age appropriate 5. Pupils are usually in mixed ability groups, however teachers may group by ability if they feel that it best suits the needs of the children within that lesson.

	<ol style="list-style-type: none"> 6. Revision and consolidation is a daily element of each maths lessons from EYFS through to Year 6. Years 1-6 use a revision grid or Flashback 4 format several times a week, whilst EYFS revisit previous blocks during lesson starters. Consolidation takes place at the end of each block through use of investigations, problem solving or reasoning activities. 7. Misconceptions are addressed throughout lessons and the maths sessions are planned with them in mind. 8. Every lesson includes opportunities for reasoning and problem solving by representing the maths in different ways, with a variety of concrete manipulatives and pictorial representations. Children are challenged to give their answers in full sentences and regularly encouraged to use mathematical vocabulary. 9. Higher level questioning is used to ensure all children, and particularly children exceeding in maths or any rapid graspers, are regularly challenged to justify answers and solve more complex problems. 10. In the early stages of learning, mistakes are encouraged and seen as an opportunity to learn, in line with a Growth Mindset approach. 11. Regular whole school initiatives, including 'Maths Days' are used to promote a sense of enjoyment and curiosity around the subject. 12. Maths morning challenges are often used to revisit and revise prior learning and host intervention groups
<p style="text-align: center;">KEY NUMBER FACTS</p>	<p>Every term, pupils are given an opportunity to free their working memory by placing their key number facts into their long-term memory. We ensure this by offering them opportunities to develop their key number facts through a concrete, pictorial, and/or abstract approach in our daily 'Maths on the Boil' sessions. The sessions focus on one objective per term that is appropriate for each year group (number bonds, multiplication, division, fractions, time and then consolidation) and are assessed throughout the term and formally tested at the end of the term using our Maths on the Boil booklets.</p> <p>Additionally, TT Rockstars and Numbots are used across the school - they are set weekly as homework to ensure children constantly review their key multiplication facts and this is shared in assemblies to encourage and celebrate achievement.</p>

<p>LEARNING ENVIRONMENT AND RESOURCES</p>	<p>When entering a maths lesson at Edward Feild School, you will see:</p> <ol style="list-style-type: none"> 1. Children taught in mixed attainment groups by their class teacher, unless deemed suitable otherwise by the class teacher in that lesson. 2. Concrete manipulatives such as dienes and/or pictorial representations – in line with calculation policy where applicable. 3. Working walls show current learning and may detail some of the concrete, pictorial, abstract approaches. 4. Relevant maths vocabulary encouraged. 5. Children working collaboratively with their talk partners, supporting each other, speaking in full sentences, and posing questions to justify and prove conjectures. 6. Misconceptions being addressed and mistakes in initial stages praised. 7. Teachers promoting connections within and across National Curriculum domains so that children are taken deeper in their learning over time and recognise interconnectedness of concepts. 8. Children enjoying maths and engaged in what they are doing. 9. Children in Reception and Key Stage 1 accessing maths activities and links to maths through rich and exciting environments within their continuous provision and outdoor learning. 10. Daily opportunities for revision and consolidation.
<p>ASSESSMENT</p>	<p>Two to three weeks after completing each White Rose block, teachers use the White Rose End of Block assessments. These are recorded in children’s maths books and are used to inform future interventions and teaching. Leaving a gap of two to three weeks after teaching before assessment enables teachers to see whether the learning has been committed to a child’s long-term memory and that they are secure with the concepts.</p> <p>Children who the class teachers feel are working within greater depth also complete a related NCETM complex problem and check the Greater Depth criteria alongside this to ensure the children are exceeding. In cases where children’s learning is most effectively deepened, the following descriptors can be seen in their learning:</p>

	<p>DEPTH</p> <ul style="list-style-type: none"> • describe it in his or her own words; • represent it in a variety of ways (e.g. using concrete materials, pictures and symbols – the CPA approach)⁸ • explain it to someone else; • make up his or her own examples (and non-examples) of it; • see connections between it and other facts or ideas; • recognise it in new situations and contexts; • make use of it in various ways, including in new situations.⁹ 	<p>GREATER DEPTH</p> <ul style="list-style-type: none"> • solve problems of greater complexity (i.e. where the approach is not immediately obvious), demonstrating creativity and imagination; • independently explore and investigate mathematical contexts and structures, communicate results clearly and systematically explain and generalise the mathematics.
<p>At the end of each term, teachers use the White Rose end of term assessments (and Year 2 and Year 6 use SATs papers). This helps to identify gaps in knowledge and areas of support for all children and helps to inform our internal data.</p>		
<p>FEEDBACK</p>	<p>Immediate feedback is given, and this helps to inform planning and teaching. At the end of each lesson, teachers use this ongoing assessment to further support children during either a small group support session or pre-teaching.</p> <p>Varied use of practical resources, structures, and representations, plus questioning that requires deeper reasoning is used to ensure all children are supported/challenged appropriately. A progression in key representations and structures, leading to understanding of sometimes complex and abstract concepts, has been defined and is exemplified in the school’s calculation policy.</p>	
<p>COVID RECOVERY</p>	<p>We know that, during school closures and the periods of remote learning since March 2020, some pupils will have fallen behind their peers. Since our return, the following strategies are taking place across the school to support pupils as they return to the Maths classroom.</p> <ul style="list-style-type: none"> - Quality first teaching for all pupils in class, with the mathematics medium-term White Rose plans recapping material from previous year groups to meet gaps in pre-requisite knowledge before moving on. 	

	<ul style="list-style-type: none"> - Daily opportunities for consolidation and revision included in every Maths lesson, including our revision grid covering concepts from previous days, weeks, terms, and year groups. - Beginning Maths on the Boil units with objectives from previous year groups. - Daily intervention time for lowest 20% of children in each class with class teacher for pre- and post-teaching of key concepts. - Increasing arithmetic sessions in Years 5 and 6 to focus on SATS preparation. - Teacher led interventions weekly in Year 6 to prepare children for SATS.
<p>IMPACT</p>	<p>By implementing the intent, children should be confident in the following:</p> <ul style="list-style-type: none"> - being fluent in the fundamentals of mathematics so that they can recall facts quickly with automaticity and accurately to reduce cognitive load. This will enable children to apply their facts and build their conceptual understanding. -to reason using full sentences and accurate vocabulary in order to develop and present a justification, argument or proof using mathematical language and/or models. -to solve problems by applying their mathematics to a variety of problems with increasing sophistication, including in unfamiliar contexts and to model real-life scenarios. - to follow a line of enquiry and enjoy and engage with solving problems, developing a systematic approach to solve problems or investigations - to have an appreciation of number and operations, which enables mental calculations and written procedures to be performed efficiently, fluently and accurately to be successful in maths <p>It is the role of the subject leader to ensure continuity and progression across the whole school. This is carried out through book looks, learning walks, pupil voice, moderation in SLT, data analysis and associated discussion with SLT. Data is analysed in teams and by the subject leader. This informs intervention for the lowest 20% and other subjects for monitoring or staff discussion. This information is monitored by the subject leader to ensure that those children who are not working at ARE are provided with the support that they need.</p>