

## Maths at Kempford C of E Primary School

At Kempford Primary, we believe that all children can achieve and be successful Mathematicians, as belief + hard work + understanding = success. We want our children to love learning Maths, we want them to be curious, ask questions and talk Mathematically, not just talk about Maths! We begin to develop a love of Maths from EYFS, where we nurture all children as confident, capable mathematicians for the future. We practise a method of learning through ‘doing’ and promote what children learn is important – but how they learn is even more crucial. Young children, throughout EYFS, learn through investigating, exploring, talking, and problem solving and, quite simply ‘doing’ things. In the Reception year, children have adults who create a continuous learning environment that supports their growing mathematical understanding, and provide experiences, which focus specifically on aspects of maths learning. Throughout our Maths teaching in KS1 and KS2, we build upon the mathematical foundations through a mastery approach to teaching and learning that continues to provide practical experiences through resources appropriately pitched at each learning stage. We seek to promote the School’s RISE vision by actively encouraging children to continually strive to improve, succeed, excel and show respect towards their Maths learning. We also incorporate our STIRKE learning skills as we prioritise talk for reasoning when teaching, which would therefore utilise speaking and listening, teamwork and evaluation skills with a can do attitude!

### Subject Leader Curriculum Intent, Implementation and Impact Overview

Date developed September 2020	Date to review August 2021	Subject Leader: Miss Allanach	
Intent	Research link	Implementation	Impact
Mathematics planning and teaching carefully sequences knowledge, concepts and procedures to build skills systematically.	The NCETM’s research all places emphasis on the importance of a mastery approach, which ensures all pupils acquire a deep, long-term understanding of the subject that is both adaptable and secure	<p><b><u>Learning Journeys</u></b></p> The school uses learning journeys taken from the new curriculum that have been broken down into smaller sequential teaching WALTs, guided by Can Do Maths and mathsnv.com. An initial elicitation before each unit will inform teachers of the children’s current knowledge to allow them to adapt teaching as necessary to meet their needs. Each step on the learning journey will include opportunities for teaching, practise and application before a child moves on. <p><b><u>Skills progression</u></b></p> We track and ensure progression of skills using the NCETM’s progression maps and the Government’s Guidance for Teaching Mathematics for each concept. The progression points for each year group complement the National Curriculum statement and the WALT’s that we create for each learning journey.	Children will develop secure conceptual knowledge and progress well through their year group expectations.

<p>Reasoning is made a fundamental part of Mathematics lessons and all staff promote a talk for reasoning culture within the classroom.</p>	<p>Forster and Eperjesi (2020) emphasise how reasoning is fundamental in being a successful Mathematician and showing a deep understanding of the mathematics involved.</p>	<p><b><u>Reasoning strategies as part of daily teaching</u></b>          Within the lesson design, opportunity to develop reasoning is included at each stage. Teachers will use open-ended questioning that doesn't just accept the answer but encourages the children to prove their understanding and explain why. This could be explaining how they have solved a problem, or explaining why something is true or false for example.</p> <p><b><u>Resources to further support reasoning</u></b>          Teachers use Inspire textbooks as a resource to present children with further depth and challenge in their learning that is relevant to the content they are covering on the learning journey. The School also uses the Can Do Maths Remember It's and Testbase as a resource to generate relevant questions that directly relate to the KS1/KS2 SATs expectations.</p>	<p>Children will be confident in using reasoning skills to approach their learning in a Mathematical way and understand how they can approach problems or explain their thinking.</p>
<p>Maths lessons are planned in a way that enables the children to make connections between Mathematical concepts and ideas. For example, children can connect how their knowledge and understanding of division can support them in finding fractions.</p>	<p>Forster and Eperjesi (2020) discuss the need for Teachers to support children in making connections between concepts and developing a greater understanding between the relationships of different areas of Mathematics.</p>	<p><b><u>Yearly curriculum map</u></b>          Maths units have been planned across the year, taking into account which units complement each other and what knowledge and understanding the children need at each stage before moving on to new concepts. For example, children need to be secure in their understanding of division before being able to successfully understand fractions and they need to be able to calculate both addition and subtractions before understanding and accessing Money content and problems. Some units may differ in length across the year groups, reflecting the greater content of the units in the National Curriculum.</p>	<p>Children will make strong connections between different mathematical concepts and be able to utilise their knowledge effectively when approaching new skills and concepts.</p>

<p>Dedicated sessions are provided each week focusing on rapid recall and use of previous knowledge. This will support Teachers in making their on-going assessment judgements of children's learning.</p>	<p>The Education Endowment Foundation (EEF) (2020) places the use of assessment to build on pupils' knowledge and understanding as the first priority in it's improving Maths in KS2 guide. It is also highlighted in it's EYFS and KS1 improvement recommendations.</p>	<p><b><u>Daily afternoon sessions - 'Maths On Track meetings'</u></b></p> <p>Children in KS1 and KS2 have a 30 minute session of deliberate practice. The first two sessions of the week focus on arithmetic and rapid recall and the final three sessions of the week are for deliberate practice of previous concepts taught or the concepts being taught that week depending on the emerging needs of the learners. Teachers will use the Maths On Track overviews to guide which skills they recap in these sessions in each year group.</p> <p><b><u>Times Tables support</u></b></p> <p>The School recognises the importance of Times Tables knowledge and how it is vital in supporting understanding of calculation strands. Children begin to find and calculate times tables in Term 2. We continue to teach this discreetly once a week using Can Do Tables as part of the afternoon deliberate practice in Key Stage 2. The School uses Kangaroo Maths methods of learning a few times table facts in succession so that children can use commutativity to access other unknown tables.</p> <p><b><u>Assessment</u></b></p> <p>Teacher's assess children's understanding in Maths as part of their on-going teaching and formative assessment and assess this using SIMS at the end of each unit. The data from SIMS is analysed in order to inform the next steps for improving and developing the children's learning prior to the next unit they engage in.</p>	<p>Children will be confident in recalling facts and knowledge that will support them in approaching new learning. This will ensure that children have a high level of fluency, that will allow them to be successful across their mathematics learning. Teachers will know with confidence how children are progressing and be able to quickly identify any areas which may require further development to secure progression.</p>
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<p>Children to be provided with the experience of approaching Mathematics learning using concrete, pictorial and abstract methods.</p>	<p>Forster and Eperjesi (2020) state that using concrete apparatus and visual representations in lessons is paramount in order to help children clarify their thinking and develop their reasoning, showing deeper understanding of the Maths.</p>	<p><b>Representations:</b> How mathematical concepts are represented is of vital importance at every stage of a child's learning throughout the school. It is therefore essential that there is clarity and consistency in what representations (models or images) are used for each of the key calculation strands at an age appropriate level. Mathematical understanding is developed through the use of <b>concrete</b> representations (Dienes apparatus, Numicon, cubes), <b>pictorial</b> representations (arrays, place value counters) and <b>abstract</b> representations (eg. column addition/subtraction). The School Calculation Policy guides teachers through an appropriate progression of representations at each year group stage, where concrete, pictorial or abstract are clearly shown. As children's mathematical understanding develops, they should be able to use and understand and use each of these representations fluently to reason and problem solve. Whilst a mathematically fluent child will be able to choose the most appropriate representation or procedure to carry out a calculation, the school will support children with carefully selected representations that underpin calculation methods, as detailed in this policy.</p>	<p>Children will become fluent in their approach to learning and be confident in self-selecting methods and resources that will be support them in their learning. They will also be able to think critically about what representations may best support them in problem solving.</p>
<p>Use of the correct Mathematical vocabulary when teaching to best support the children's growing knowledge and understanding and enable them to use vocabulary with confidence when reasoning and explaining their ideas.</p>	<p>Forster and Eperjesi (2020) encourage Teachers to consider what key vocabulary will be needed in order to communicate their thinking prior to teaching. They suggest sentence starters that children can repeat and use to help them be successful.</p>	<p><b>Mathematical vocabulary use</b> We acknowledge the importance of teaching and using the correct Mathematical vocabulary with the children so that they can utilise it effectively when approaching their learning. To support Teachers, they refer to the NCETM's National Curriculum Glossary to check that the language they are using is correct and relevant for the stage they are teaching. This tool is also used to check subject knowledge to ensure that we are teaching concepts accurately and effectively. Teachers also utilise the vocabulary guide included in the Can Do Maths scheme, which provides sentence stems for each unit to ensure the children have secure conceptual understanding.</p>	<p>Children will use vocabulary correctly when approaching learning and be able to identify what vocabulary they would need to use to explain their ideas.</p>

<p>Ensure that parents are supported and understand how the School approaches Maths in order to continue support at home.</p>	<p>The EEF have a dedicated section focused around parental engagement in their toolkit, mentioning that parents play a crucial role in supporting their children's learning.</p>	<p><b><u>Parent information evening</u></b> At the beginning of the School year, an information evening is held for parents that outlines how Maths is taught in the School and models how children learn the four calculations across the School to support parents in understanding key concepts.</p> <p><b><u>MyMaths</u></b> The School uses MyMaths to further support children in developing their mathematical understanding at home. Teachers set homework to consolidate the learning journey that the children have completed. This resource provides an interactive lesson for the children to engage with and then provides homework which provides Teachers with assessment intervention. This is another way that the School can track children's development within Mathematics.</p>	<p>Maths learning will be as consistent and accurate as possible between both home and school, resulting in good progress for the children.</p>
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## Teaching and learning in Maths

In EYFS we realise that talk is at the heart of maths learning. Most of children's understanding about number, shapes and measures comes from talking about number, shapes and measures, and exploring them through everyday play indoors and outdoors. We support children's developing knowledge, understanding of number and specific vocabulary and questions used which extend learning and enabling statements, which will support children's thinking. Children have daily short focused maths sessions with a teacher or TA and have the opportunity to explore maths through child initiated learning and continuous provision.

Maths is taught twice a day in KS1 and KS2, in the morning and in the afternoon and once a day in EYFS. The morning session is designed to support and challenge the children with the WALT and follows this teaching structure:

Main teaching input:

- 1) Hook it – lesson introduction
- 2) Teach it – live modelling of the new learning with explicit use of potential misunderstandings
- 3) Practice it – all children practice together (Support and challenge)

Independent/small group learning:

- 4) Do it – up to 5 examples, 5 'what it is' or 3 + 2 'what it is'/'what it is also' - Procedural Fluency.
- 5) Secure it – 1 or 2 misunderstandings (True/false, spot the mistake – Conceptual understanding
- 6) Deepen it – Apply understanding to solve new problems – Mathematical thinking
- 7) Review it – lesson recap with key concept statement and new vocabulary

The afternoon sessions for KS2 are designed to be either 'Maths Meetings' or 'Skills Sessions'. Maths Meetings are where the children are being extended/practising/consolidating the morning learning or receiving interventions identified as needed by the Teacher from the morning session. Skills Sessions are deliberate practice and rapid recall of previous learning such as number bonds, doubles, times tables and so on.