

Subject leader summary – Maths

September 2023

<p>Our Vision (Intent)</p>	<p>We believe that our children should have the aspiration and opportunity to 'Live life in all its fullness' John 10:10 and 'Shine like stars in the sky' Philippians 2:15.</p> <p>Our curriculum is based on a consideration of the contextual needs of our cohorts and families, our local context and government requirements, in addition to curriculum research; this has helped shape our vision and intent.</p> <p>Our curriculum is a journey and never a finished article. It is reviewed at least annually to ensure it is still meeting the needs of our children in an ever changing world.</p> <p>Our aspiration for our children has been framed into our 6 golden threads which we feel our children need to be able to do to 'shine like stars' and 'live life in all its fullness'. This ensures the opportunities for these are a focus within school, and throughout a child's journey in school. We want our children to:</p> <ul style="list-style-type: none">• Become life-long readers• Be confident communicators• Be spiritually, mentally and physically healthy• Be creative• Be curious• Understand and embrace the wider world
<p>Curriculum Design (Intent)</p>	<p>The 2014 National Curriculum for Maths aims to ensure that all children:</p> <ul style="list-style-type: none">• Become fluent in the fundamentals of Mathematics• Are able to reason mathematically• Can solve problems by applying their Mathematics <p>At the federation of Kirkby Malzeard and St Nicholas schools, these skills are embedded within our maths lessons and routines and are developed consistently over time.</p> <p>At our schools we aim for our children to develop a love of mathematics and become confident mathematicians that can effectively use their skills to embrace the wider world. Through the skills learnt in mathematics our children will be problem solvers who will be curious to discover solutions.</p> <p>Our curriculum has been carefully designed to ensure that we are teaching for mastery for all pupils.</p>

	<p>So that our children know more, remember more and therefore do more.</p>
<p>Subject specific design</p>	<p>Our maths teaching and learning consists of the 'five big ideas' of teaching for mastery: coherence, representation & structure, mathematical thinking, fluency and variation.</p> <p>The five big ideas:</p> <div data-bbox="619 488 1294 958" data-label="Diagram"> </div> <p>(NCETM, 2017)</p> <p>What this looks like in practice</p> <p>Coherence</p> <p><i>Lessons are broken down into small connected steps that gradually unfold the concept, providing access for all children and leading to a generalisation of the concept and the ability to apply the concept to a range of contexts.</i></p> <ul style="list-style-type: none"> • We use the NCETM Curriculum Prioritisation materials as our planning starting point. These materials provide coherent sequencing for the primary maths curriculum. It draws together the DfE guidance on curriculum prioritisation, with the high quality professional development and classroom resources provided by the NCETM Primary Mastery PD materials. The Maths Hub, in liaison with NCETM, have used these materials to create a KS2 mixed-age plan. • We supplement this planning using... <ul style="list-style-type: none"> ○ NCETM Primary Mastery Professional Development booklets – these support the subject knowledge for the teacher and explain how to ensure there is teaching for mastery within objectives. ○ 'Master the curriculum' resources – this provides questions/resources to allow children to demonstrate their understanding. These resources

are designed to support the White Rose Maths planning.

- Gareth Metcalf's 'I see reasoning' and 'I see problem solving' activities.

Representation & Structure












Representations used in lessons expose the mathematical structure being taught, the aim being that students can do the maths without recourse to the representation

- A variety of representations are used within lessons using the CPA (concrete, pictorial, abstract) approach within all age-groups for all learners.
- Every class has access to numicon, dienes/base 10, bead strings, coins, counters, multi-link/numberblock cubes for concrete representations. In EYFS/KS1 there will also be a variety of 'real' objects to use such as conkers, lollipop sticks, beads.

Mathematical Thinking

If taught ideas are to be understood deeply, they must not merely be passively received but must be worked on by the student: thought about, reasoned with and discussed with others

- Our maths lessons are rich in discussion. All children are involved and are encouraged to share and reflect upon mistakes: "mistakes are beautiful".
- We deepen the children's understanding through questioning that provokes reasoning:
 - Convince me...
 - Odd one out
 - True or false

<p>What do you notice?</p> 	<p>True or false?</p> <p>T F</p>	<p>Odd One Out</p> 	<p>Do, then explain.</p> 
<p>Spot the mistake.</p> 	<p>Another and another and ...</p> 	<p>The answer is</p>  <p>What was the question?</p>	<p>What comes next? Continue the pattern.</p> 
<p>Prove it!</p> 	<p>Always, Sometimes, Never</p> 	<p>What's the same? What's different?</p> 	<p>Change one thing...</p> 

Fluency

Quick and efficient recall of facts and procedures and the flexibility to move between different contexts and representations of mathematics

	<ul style="list-style-type: none"> • KS1 follow the NCETM mastering number programme to develop fluency with number facts. KS2 follow the Claire Christie times table fluency programme. These programmes develop number sense and instant recall of key facts. (See Number facts and timetables fluency reference sheets for more detail on how this works.) • KS1 children have access to Numbots to support their fluency at home. KS2 (and year 2 in the summer term) children have access to Times Tables Rockstars. • Within our learning of new knowledge, we use sentence stems to secure key knowledge. These are modelled by the teacher and then the children are encouraged to use these when reasoning with their deeper mathematical thinking. <p>Variation</p> <p><i>Variation is twofold. It is firstly about how the teacher represents the concept being taught, often in more than one way, to draw attention to critical aspects, and to develop deep and holistic understanding. It is also about the sequencing of the episodes, activities and exercises used within a lesson and follow up practice, paying attention to what is kept the same and what changes, to connect the mathematics and draw attention to mathematical relationships and structure.</i></p> <ul style="list-style-type: none"> • Every block of learning is carefully planned by the class teacher to ensure children are exposed to both conceptual and procedural variation. • NCETM CP materials incorporate variation into its professional development materials • Representation and structure are key in supporting the understanding of variation.
<p>What documents are in place?</p> <p>What do we plan from and why?</p>	<p>Subject leader knowledge and skills progression document.</p> <p>NCETM</p> <ul style="list-style-type: none"> • Reference document for staff • Year 1 and year 2 curriculum maps • Mixed-age curriculum map for years 3/4 and years 5/6 • EYFS (including nursery) progression <p>Fluency</p> <ul style="list-style-type: none"> • Times tables reference document • Times table booklets • Mastering number • Factual Foundational fluency progression (as part of curriculum maps) <p>Supplementary resources</p> <ul style="list-style-type: none"> • I see reasoning, Gareth Metcalf • I see problem solving, Gareth Metcalf

	<ul style="list-style-type: none"> • 'Master the curriculum' <p>We have chosen to use this resource as it follows a teaching for mastery approach. The mixed-aged planning allows us to meet the needs of our children better and ensure we have appropriate time to master their understanding. It is not a complete scheme of work and therefore requires professional judgement when planning which allows us more flexibility to respond to the needs of our children. Monitoring of maths across the last academic year along with professional development provided shows we have the teaching strengths within our staff team to allow for this. We will be part of a working group of 5 schools who are implementing the plan this year and therefore will have a support network if required.</p>
<p>Key Principles</p>	<p>At our schools we aim for our children to develop a love of mathematics and become confident mathematicians that can effectively use their skills to embrace the wider world. Through the skills learnt in mathematics our children will be problem solvers who will be curious to discover solutions.</p> <p>Our curriculum has been carefully designed to ensure that we are teaching for mastery for all pupils.</p>
<p>How/When do we assess our children and their progress and attainment?</p>	<p style="text-align: center;"><i>Under review Autumn 2023</i></p> <p>Termly assessment – reported to SLT</p> <p>We assess our children against the 'ready to progress criteria' and security of foundational fluency facts. At the end of each term, teachers use the assessment questions for the units taught so far and make a RAG judgement on their security for each one. Teachers use this data to decide if overall the child is 'on track' for ARE and this is plotted on our internal tracking systems.</p> <p>At the end of each year, we complete a standardised summative assessment paper. For children in year 3 and 5, professional judgment will need to be carefully used alongside these summative assessments as the full curriculum may not have been covered due to the mixed-age planning.</p> <p>Year 6 use past SATs papers to assess progress towards the end of key stage throughout the year.</p> <p>Statutory Assessments</p> <ul style="list-style-type: none"> • Year 2 SATs (optional) • Year 4 Multiplication Tables Check (MTC) • Year 6 SATS (Arithmetic, reasoning 1, reasoning 2) <p>On-going AFL – recorded in marking and feedback books</p>

<p>How do we ensure our children have retained this knowledge? When/how do we revisit?</p>	<p>Ready to progress criteria will support teachers in assessing whether the children have the required knowledge and understanding to further their learning for pre-teaching and over-learning within maths lessons.</p> <p>Fluent in 5 is used by classes daily to revisit previous learning and check retention of learning. Cross curricular opportunities are also used for informal assessments.</p>
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