

Hampreston CE VA First School

Policy | Plan | Progression 2022/23

Vision

We want all children, regardless of age, stage or need, to develop secure and fundamental mathematical knowledge. We want them to be able to quickly draw links between mathematical knowledge and concepts, within and across subjects and apply these skills in a wide range of problem-solving situations. We will give our children the opportunity to develop a familiarity with a range of solving strategies, including using concrete, pictorial and abstract models so that they can articulate these to others and select suitable skills when problem solving. We want our children to engage with maths and develop a love of learning within the subject.

Why We Believe *Maths* is Important

Mathematics teaches us how to make sense of the world around us through developing a child's ability to calculate, to reason, to be financially responsible and to solve problems. It enables children to understand and appreciate relationships and patterns in their everyday lives. Through their growing knowledge and understanding, children learn to appreciate the contribution made by many cultures to the development and application of mathematics

Characteristics of Mathematicians

We believe that all children can and should be mathematicians.

As mathematicians, children understand that:

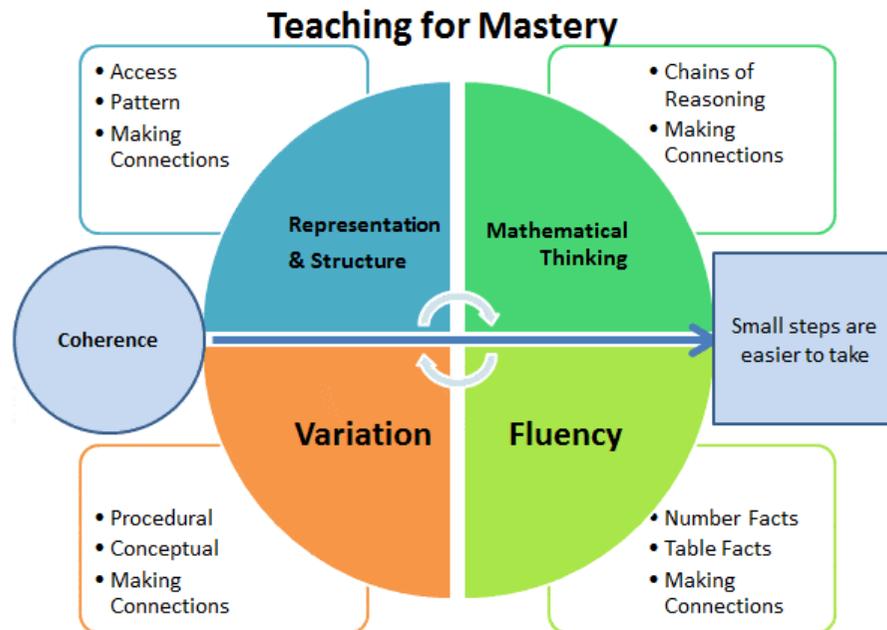
- Everyone can learn mathematics to the highest levels
- If you 'can't do it', you 'can't do it yet'
- Mistakes are valuable
- Questions are important
- Mathematics is about creativity and problem solving

- Mathematics is about making connections and communicating what we think
- Depth is much more important than speed
- Mathematics lessons are about learning, not performing

Subject Statement

Intent

At Hampreston, we take a mastery approach to the teaching and learning of mathematics and we believe that all children can be successful in the study of mathematics. We teach the skills to ensure our children are resilient learners who become life-long mathematicians. We aim to deliver an inspiring and engaging mathematics curriculum through high quality teaching and ensuring that all teachers feel that they are properly equipped to teach amazing maths. In order to improve our mastery approach we consider the NCETM *Teaching for Mastery* model.



Coherence

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. This is reflected in the small steps that each unit is broken down into.

Representation and 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. For further information on the different representations that we use in maths lessons see appendix 3.

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. Each lessons we provide time for children to practise each of these skills.

Fluency

Quick and efficient recall of facts, procedures, and the flexibility to move between different contexts and representations of mathematics. We encourage children to see the relationships between taught facts and the wider mathematical world. For more information on how we teach times tables see appendix 4.

Variation

Variation is twofold. It is firstly about how the concepts are 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. The small steps within each unit allow for appropriate variation and that key concepts are given enough time to be embedded.

The Five Big Ideas were first published by the NCETM in 2017.

Our maths approach enables children to be numerate, creative, independent, inquisitive, enquiring and confident learners. Children should not be afraid to make mistakes and should fully embrace the fact that mistakes are part of learning. A mastery curriculum promotes a deep, long-term, secure and adaptable understanding of the subject, so that children become fluent in calculations; possess a growing confidence to reason mathematically and hone their problem-solving skills.

The intention of the maths curriculum at Hampreston is for children to be excited about maths and active participants in their learning. Teachers promote children's enjoyment of maths and provide opportunities for children to build a conceptual understanding of maths before applying their knowledge to everyday problems and challenges. We ensure that challenge is provided for all children, whatever their understanding and believe that equality of opportunity is important. We wish to develop children's ability to communicate verbally and structure their thoughts so that they make sense to other people, through developing their presentational and dialogic oracy skills. Children are always encouraged to be brave and push the boundaries, deepening their understanding further.

Implementation

At Hampreston, we recognise that children need to be confident and fluent mathematicians. To ensure consistent coverage, teachers follow the White Rose Hub scheme of learning to support their planning. Through this approach, carefully designed variation builds fluency and understanding of underlying mathematical concepts while maintaining continuity and progression in the teaching of maths at Hampreston. Teachers mark off the various small steps that have been taught in each unit to provide a learning picture of individual cohorts. Teachers have access to high quality CPD videos that explore each topic being taught and how it fits into the overall learning journey of the children. This highlights links to previous learning and how it links to future topics. These CPD videos also talk through the five big ideas and how fluency, variation, mathematical thinking, reasoning and structure can be used effectively in planning and delivering lessons.

Our curriculum builds on the concrete, pictorial, abstract approach. By using all three, the children can explore and demonstrate their mathematical learning. Together, these elements help to cement knowledge so children truly understand what they have learnt.

Teachers reinforce an expectation that all children are capable of achieving high standards in Mathematics. The large majority of children progress through the curriculum content at the same pace and differentiation is achieved by emphasising deep knowledge and through individual scaffolding, support and intervention. Teachers use precise questioning in class to test conceptual and procedural knowledge and assess children regularly to identify those requiring intervention, so that all children keep up. We promote classrooms rich in mathematical talk, in which questions are planned, peer conversations are modelled and scaffolded and teachers use talk skilfully to develop children's thinking and communication skills.

Impact

At Hampreston, we tell our children that it is OK to be 'wrong' because the journey to finding an answer is most important. Our WRH books and Maths Journals contain a range of activities, showing evidence of fluency, reasoning and problem solving. Our feedback and interventions are supporting children to strive to be the best mathematicians they can be, ensuring a greater proportion of children are on track.

Children persevere when attempting to solve problems, and choose the equipment and strategies they think are best suited to each problem. Our Maths Mastery approach ensures that their knowledge is well embedded and gives them the right tools to solve problems in different contexts. Children are developing skills in being able to reason verbally, pictorially and in written form.

Regular and ongoing assessment informs teaching, as well as intervention, to support and enable the success of each child. Summative assessment takes place at the end of each half term. Formative assessment takes place on a daily basis and teachers adjust planning accordingly to meet the needs of their class. In addition, we place a strong emphasis on the power of questioning: this enables us both to explore topics together as a class as well as verbally develop reasoning skills during our lessons. Children are encouraged to take ownership of their learning through self- and peer- assessment and group learning activities.

The effectiveness of teaching and learning is monitored termly by the subject lead and SLT through learning walks, book scrutinies, termly assessments and pupil interviews. This information will be used to evaluate the effectiveness of subject plans and subject practice. The impact on the whole school learning and teaching will be used to inform the school development plan.

This is what some of our children say about maths:



Maths Curriculum Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Reception WRH Scheme of Learning	Baseline Just like me! <i>Match, sort and compare amounts</i> <i>Compare size, mass and capacity</i> <i>Explore pattern</i>	It's me 1, 2, 3! <i>Represent, compare and compose 1, 2 & 3</i> <i>Circles and triangles</i> <i>Positional language</i> Light & dark <i>Representing numbers to 5</i> <i>One more and less</i> <i>Shapes with 4 sides</i> <i>Time</i>	Alive in 5! <i>Introduce 0</i> <i>Compare numbers to 5</i> <i>Composition 4 & 5</i> <i>Compare mass</i> <i>Compare capacity</i> Growing 6, 7, 8 <i>6, 7 & 8</i> <i>Combining 2 amounts</i> <i>Making pairs</i> <i>Length & height</i> <i>Time</i>	Building 9 & 10 <i>Counting to 9 & 10</i> <i>Comparing numbers to 10</i> <i>Bonds to 10</i> <i>3d shapes</i> <i>Patterns</i> Consolidation	To 20 and beyond <i>Building numbers beyond 10</i> <i>Counting patterns beyond 10</i> <i>Spatial reasoning (1)</i> <i>Match, rotate, manipulate</i> First, then, now <i>Adding more</i> <i>Taking away</i> <i>Spatial Reasoning (2)</i> <i>Compose and decompose</i>	Find my pattern <i>Doubling</i> <i>Sharing and grouping</i> <i>Even and odd</i> <i>Spatial Reasoning (3)</i> <i>Visualise and Build</i> On the Move <i>Deepening understanding</i> <i>Patterns and relationships</i> <i>Spatial Reasoning (4)</i> <i>Mapping</i>
Year 1 WRH Scheme of Learning	Place value within 10 Addition and Subtraction within 10	Addition and Subtraction within 10 Geometry - Shape	Place value within 20 Addition and Subtraction within 20	Place value within 50 Measurement – Length and height Measurement – Mass and volume	Multiplication and division Fractions Geometry – Position and differentiation	Place value within 100 Measurement – Money Measurement – Time
Year 2 WRH Scheme of Learning	Place value Addition and Subtraction	Addition and Subtraction Geometry - Shape	Measurement – Money Multiplication and Division	Multiplication and Division Measurement – Length and height Measurement – Mass, capacity and temperature	Statistics Fractions	Geometry – Position and direction Problem solving Measurement – Time
Year 3 WRH Scheme of Learning	Place value Addition and Subtraction	Addition and Subtraction Multiplication and Division	Multiplication and Division Measurement – Length and perimeter	Fractions Measurement – Mass and capacity	Fractions Measurement – Money Measurement – Time	Measurement – Time Geometry – Shape Statistics
Year 4 WRH Scheme of Learning	Place value Addition and Subtraction	Measurement – Area Multiplication and Division	Multiplication and Division Measurement – Length and perimeter	Fractions Decimals	Decimals Measurement – Money Measurement – Time	Geometry – Shape Statistics Geometry – Position and direction

Promoting British Values Through Maths

We endeavour to promote the British Values of democracy, the rule of law, individual liberty and mutual respect and tolerance of those with different faiths and beliefs through our science curriculum. Please see our British Values policy for further information. Through our maths lessons we promote individual liberty through encouraging children to make their own choices and mutual respect in listening to other people's ideas.

Spiritual, Moral, Social and Cultural Aspects

Mathematics supports spiritual development by engaging children with depth of thinking and problem solving. It also helps children to make connections between numeracy skills and real life; for example, budgeting, saving and making charitable donations. The School Council make decisions about fundraising for charity and for the benefit of the school.

Mathematics supports moral development by encouraging children to look, discuss and evaluate a range of social and moral issues found in the world. This can sometimes draw upon other areas of study, such as history or geography through engaging in unequal shares of resources, why someone might be upset if they received less than other people and make links to the concept of inequality.

Mathematics supports social development by requiring verbal reasoning. Children have opportunities to discuss their learning with their peers at regular intervals throughout the lesson. Also through the sharing of resources within the classroom, the negotiating of responses and group problem solving and by using discussion, debate and collaborative work to further mathematical knowledge and understanding.

Mathematics supports the cultural development of a child by exposing them to a range of different approaches to solving problems and reasoning skills; through asking questions about the history of maths: for example, 'What did the Egyptians discover that we still use in maths today?'; as well as using mathematics to interpret and evaluate geographical and scientific data.

Inclusion & Equal Opportunities

Through the maths policy, we aim to provide every child with an equality of opportunity to access a broad and balanced curriculum regardless of gender, ability, attainment, background and ethnicity, through:

- Valuing the wide variety of experiences the children bring to school
- Providing differentiated tasks for gifted and more able pupils
- Providing Intervention programs
- Addressing the needs of children learning English as an additional language

Date of policy review:

Appendix 1: National Curriculum Progression

Appendix 2: Ready to Progress Coverage

[Ready to Progress Coverage](#)

Appendix 3: Calculation Documents – Models and Skills

[Addition and Subtraction Calculation Policy](#)

[Multiplication and division Calculation Policy](#)

Appendix 4: Time Tables Progression

Year 1

Autumn 1	Count in 2's up to 24, linking with even numbers and supporting doubles.
Autumn 2	Count in multiples of 10 in order up to 120.
Spring 1	Focus on counting in multiples of 5 up to 60, linking with knowledge of counting in 10s.
Spring 2	Continue to develop fluency of counting in 2's and 10's.
Summer 1	Count in multiples of 10, 2 and 5 in order with growing fluency
Summer 2	Count in multiples of 10, 2 and 5 in order fluently.

Year 2

Autumn 1	Consolidate counting in steps of 2, 5 and 10 in order from 0 up to 12x. Count in steps of 2 and 5 from 0 up to 12x fluently.
Autumn 2	Recall multiples of 10 up to 12x10 in any order, including missing numbers and related division facts with growing fluency.
Spring 1	Recall multiples of 2 up to 12x2 in any order, including missing numbers and related division facts. Recall multiples of 10 up to 12x10 fluently.
Spring 2	Recall multiples of 5 up to 12x5 in any order, including missing numbers and related division facts. Recall multiples of 2 up to 12x2 in any order, including missing numbers and related division facts with growing fluency
Summer 1	Count in multiples of 3 to 12x3 in order from 0. Recall multiples of 2 up to 12x2 in any order, including missing numbers and related division facts fluently. Recall multiples of 5 up to 12x5 in any order, including missing numbers and related division facts with growing fluency.
Summer 2	Count in multiples of 3 to 12x3 in order from 0 with growing fluency. Recall multiples of 5 up to 12x5 in any order, including missing numbers and related division facts fluently.

Year 3

Autumn 1	Count in multiples of 3 to 12x3 in order from 0 fluently. Recall multiples of 3 up to 12x3 in any order, including missing numbers and related division facts with growing fluency.
Autumn 2	Count in multiples of 4 to 12x4 in order from 0 with growing fluency. Introduce (relating to x4) and begin to count in multiples of 8 from 0 to 12x8.
Spring 1	Recall multiples of 3 up to 12x3 in any order, including missing numbers and related division facts fluently. Count in multiples of 4 to 12x4 in order from 0 with fluently. Count in multiples of 8 to 12x8 in order from 0 with growing fluency.
Spring 2	Recall multiples of 4 up to 12x4 in any order, including missing numbers and related division facts with growing fluency. Count in multiples of 8 to 12x8 in order from 0 fluently
Summer 1	Recall multiples of 4 up to 12x4 in any order, including missing numbers and related division facts fluently. Recall multiples of 8 up to 12x8 in any order, including missing numbers and related division facts with growing fluency.
Summer 2	Recall multiples of 8 up to 12x8 in any order, including missing numbers and related division facts fluently.

Year 4

Autumn 1

Recall multiples of 3,4 and 8 up to $12x$ in any order, including missing numbers and related division facts fluently.
Fluently count in 6's in order up to $12x6$, using multiples of 3 to support.

Autumn 2

Recall multiples of 6 in any order, including missing numbers and related division facts with growing fluency.
Fluently count in 7's in order up to $12x7$.

Spring 1

Recall multiples of 6 in any order, including missing numbers and related division facts fluently.
Recall multiples of 7 in any order, including missing numbers and related division facts with growing fluency.

Spring 2

Recall multiples of 7 in any order, including missing numbers and related division facts fluently.
Fluently count in 9's in order up to $12x9$.
Fluently count in 11's in order up to $12x11$.

Summer 1

Recall multiples of 9 in any order, including missing numbers and related division facts with growing fluency (using $10x$ and adjusting by 1 group to find $9x$ as a strategy)
Recall multiples of 11 in any order, including missing numbers and related division facts fluently.
Fluently count in 12's in order up to $12x12$.

Summer 2

Recall multiples of 9 in any order, including missing numbers and related division facts fluently.
Recall multiples of 12 in any order, including missing numbers and related division facts with growing fluency (using $10x$ and adjusting by adding 2 more groups).