Mathematics Curriculum Overview

Mathematics Specific Areas of the Early Years Framework

By the end of the Early Years Foundation Stage the children in Reception are expected to display the following skills confidently and independently, in order to best prepare them for their next stage of learning:

- **Number:** Children will have a deep understanding of numbers to 10, including the composition of each number. Children will subitise (recognise quantities without counting) up to 5. They will automatically recall (without reference to rhyme, counting or other aids) number bonds to 5 (including subtraction facts) and some number bonds to 10, including double facts.
- **Numerical Patterns:** Children will be taught to verbally count to 20, recognising the pattern of the counting system. They will compare quantities up to 10 in different contexts, recognising when a quantity is greater than, less than or the same as the other quantity. Children will explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

Aims of the Mathematics National Curriculum

The national curriculum for mathematics aims to ensure that all pupils:
become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately

- reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language;
- can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Spoken Language

The national curriculum for mathematics reflects the importance of spoken language in pupils' development across the whole curriculum – cognitively, socially, and linguistically. The quality and variety of language that pupils hear and speak are key factors in developing their mathematical vocabulary and presenting a mathematical justification, argument or proof. They must be assisted in making their thinking clear to themselves as well as others and teachers should ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions.

Mathematics Curriculum Overview

Early Years Mathematics

In the EYFS Mathematics is explored through play. The children are introduced to new concepts and ideas through adult guided or whole class teaching and are then given the opportunity to independently explore these both indoors and out. Practical resources are at the heart of the learning and children will be familiarised with many of the models and resources needed for their future maths work, e.g. part-whole model.

We focus largely on understanding of number and want the children to understand the link between numbers and quantities, how quantities are composed of smaller parts, how numbers relate to one another, how quantities change when you add or take away. We predominately focus on developing a really strong sense of numbers to 10, but children will be able to count to 20 and beyond and develop a sense of what those numbers mean.

Key Stage 1 Mathematics

The principal focus of mathematics teaching in Key Stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources.

At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.

By the end of Year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency.

Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at Key Stage 1.

Mathematics Curriculum Overview

Lower Key Stage 2 Mathematics

The principal focus of mathematics teaching in lower Key Stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.

At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number.

By the end of Year 4, pupils should have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work.

Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

Upper Key Stage 2 Mathematics

The principal focus of mathematics teaching in upper Key Stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio.

At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems.

Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them.

By the end of Year 6, pupils should be fluent in written methods for all 4 operations, including long multiplication and division, and in working with fractions, decimals, and percentages. Pupils should read, spell and pronounce mathematical vocabulary correctly.

Mathematics Curriculum Overview

Curriculum Overview			
	Autumn	**Spring**	**Summer**
Reception	**Number** Children will recognise numbers 1-5. Children will begin to subitise to 5. Children will explore the composition of numbers to 5. Children will know 1 more than numbers to 5. **Numerical Patterns** Children will compare equal and unequal groups. Children will compare quantities to 5.	**Number** Children will recognise numbers to 10. Children will find 1 more and 1 less of numbers to 10. Children will know some number bonds for 10. **Numerical Patterns** Children will add and subtract using number sentences. Children will compare quantities to 10. Children will be able to count to 20.	**Number** Children will know number bonds to 10, including doubling facts. Children will add and subtract numbers to 10 using concrete aids. **Numerical Patterns** Children will be able to count beyond 25. Children will share and group quantities equally. Children will explore odd and even number
Year 1	➢ **Number: Number and place value**: ○ Numbers to 10 ○ Part-whole within 10 ○ Addition and subtraction within 10 ○ Numbers to 20 ➢ **Geometry**: ○ 2D and 3D shape	➢ **Number: Addition and subtraction**: ○ Addition within 20 ○ Subtraction within 20 ➢ **Number and place value**: ○ Numbers to 50 ➢ **Measurement:** ○ Length and height ○ Weight and volume	➢ **Number: Multiplication and division** ➢ **Number: Fractions**: ○ Halves and quarters ➢ **Geometry**: ○ Position and movement ➢ **Number and place value**: ○ Numbers to 100 ➢ **Measurement:** ○ Time ○ Money

Mathematics Curriculum Overview

Year 2	➢ **Number: Number and place value**: ○ Numbers to 100 ➢ **Number: Addition and subtraction** ➢ **Measurement**: ○ Money ➢ **Number: Multiplication and division**	➢ **Number: Multiplication and division** ➢ **Statistics** ➢ **Measurement:** ○ Length and height ➢ **Geometry**: ○ Properties of shape ➢ **Number: Fractions**	➢ **Geometry**: ○ Position and movement ➢ **Number: Addition and subtraction:** ○ Problem solving and efficient methods. ➢ **Measurement:** ○ Time ○ Weight, volume, and temperature
Year 3	➢ **Number: Number and place value:** ○ Place value within 1000 ➢ **Number: Addition and subtraction** ➢ **Number: Multiplication and division**	➢ **Number: Multiplication and division** **Measurement:** ○ Money ○ Length ➢ **Statistics** ➢ **Number: Fractions**	➢ **Number: Fractions** ➢ **Measurement:** ○ Time ○ Mass ○ Capacity ➢ **Geometry**: ○ Angles and properties of shape
Year 4	➢ **Number: Number and place value**: ○ 4-digit numbers ➢ **Number: Addition and subtraction** **Measurement**: ○ Perimeter ➢ **Number: Multiplication and division**	➢ **Number: Multiplication and division** ➢ **Number: Fractions (including decimals)**	➢ **Number: Fractions (including decimals)** ➢ **Measurement**: ○ Time ○ Money ➢ **Statistics** ➢ **Geometry**: ○ Angles and 2D shape ○ Position and direction

Mathematics Curriculum Overview

Year 5	➢ **Number: Number and place value**: ○ Place value within 100,000 ○ Place value within 1,000,000 ➢ **Number: Addition and subtraction** ➢ **Statistics:** ○ Graphs and tables ➢ **Number: Multiplication and division** ➢ **Measurement:** ○ Area and perimeter	➢ **Number: Multiplication and division** ➢ **Number: Fractions (including decimals and percentages)**	➢ **Number: Fractions (including decimals and percentages)** ➢ **Geometry:** ○ Properties of shape ○ Position and direction ➢ **Measurement:** ○ Converting units ○ Volume and capacity
Year 6	➢ **Number: Number and place value**: ○ Place value within 10,000,000 ➢ **Number: Addition, subtraction, multiplication and division** ➢ **Number: Fractions** ➢ **Geometry:** ○ Position and direction	➢ **Number: Fractions (including decimals and percentages)** ➢ **Algebra** ➢ **Measurement:** ○ Imperial and metric measures ○ Perimeter, area and volume	➢ **Geometry:** ○ Properties of shape ➢ **Number: Number and place value** ○ Problem-solving ➢ **Statistics**