

**Subject:** Mathematics

**Last updated:** July 2018

### **Purpose of study:**

Our mathematics curriculum provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

### **Aims:**

Our 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

Additionally, our curriculum encourages pupils to talk about their mathematical reasoning, which is a key factor in developing mathematical vocabulary and presenting a mathematical justification, argument or proof. In this way, pupils learn to make their thinking clear to themselves as well as others, and teachers ensure that pupils build secure foundations by using discussion to probe and remedy any misconceptions.

### **Content :**

#### **Key Stage 1 (Years 1 and 2)**

The principal focus of our mathematics teaching in Key Stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This involves working with numerals, words and the four operations; children will have the opportunities to use practical resources (for example, concrete objects and measuring tools) to embed their learning.

At this stage, pupils develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teachers also help pupils to use 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 will know the number bonds to 20 and be precise in using and understanding place value. An emphasis is placed on practice at this early stage.

The curriculum ensures that pupils are able to read and spell mathematical vocabulary, at a level consistent with their increasing word-reading and spelling knowledge at Key Stage 1.

Over the course of the two years pupils will cover:

- Number - number and place value
- Number - addition and subtraction
- Number - multiplication and division
- Number - fractions
- Measurement
- Geometry - properties of shapes
- Geometry - position and direction □ Statistics

### **Lower Key Stage 2 (Year 3 and 4)**

The principal focus of our mathematics curriculum 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 ensures that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.

We aim to also make sure that pupils also develop their ability to solve a range of problems, including simple fractions and decimal place value. Teaching also ensures 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. Our curriculum ensures that they can use measuring instruments with accuracy and make connections between measure and number.

By the end of Year 4, it is our aim that pupils will have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work. They should be able to read and spell mathematical vocabulary correctly and confidently, using their growing sight vocabulary and knowledge of spelling.

Over the course of the curriculum, pupils will learn about:

- Number - number and place value
- Number - addition and subtraction
- Number - multiplication and division
- Number - fractions
- Measurement
- Geometry - properties of shapes
- Geometry - position and direction
- Statistics

### **Upper Key Stage 2 (Years 5 and 6)**

The principal focus of our mathematics curriculum 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 develop their ability to solve a wide 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 aims to consolidate and extend knowledge developed in number. Teaching also ensures that pupils classify shapes with increasingly complex geometric properties and pupils learn the vocabulary they need to describe them.

By the end of Year 6, the curriculum followed aims to make sure that pupils are fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages. Pupils are able to read, spell and pronounce increasingly complex mathematical vocabulary correctly.

Over the course of the curriculum, pupils will learn about:

- Number - number and place value
- Number - addition and subtraction
- Number - multiplication and division
- Number - fractions
- Measurement
- Geometry - properties of shapes
- Geometry - position and direction
- Statistics