

## Maths Curriculum Overview

In the knowledge that learning mathematics involves exposing structures and making connections, these annual plans are built around four themes:

- i. **number sense,**
- ii. **additive reasoning,**
- iii. **multiplicative reasoning and**
- iv. **geometric reasoning.**

These themes make clear connections between areas of mathematics, encouraging children to use what they know and understand rather than treating each area of maths as separate and unconnected.

### Themes

**Number Sense** - this theme is about understanding our number system, starting with counting numbers and building on this understanding to include negative numbers, fractions and decimals. The focus is on building an understanding of how our numbers work and fit together and includes exploring place value, comparing and ordering numbers and rounding and applying this understanding in different contexts. Understanding our number system underpins calculation, and in each year group, blocks on additive reasoning and multiplicative reasoning are usually preceded by a block on number sense which explores understanding necessary for the following calculation block.

**Additive Reasoning** - this theme is about all aspects of understanding addition and subtraction. The focus is on understanding addition and subtraction together and the relationship between them, and using this understanding to solve problems in different contexts, including measures and statistics. The expectation is that children of all ages appropriately choose and use number facts, understanding of place value and different methods (starting with counting and mental methods and developing into mental and written methods), explaining their decision making and justifying their solutions.

**Multiplicative Reasoning** - this theme is about all aspects of understanding multiplication and division including fractions. The focus is on understanding multiplication and division together and the relationship between them, clearly connecting to this an understanding of fractions both as operators, e.g. the equivalence between dividing by five and multiplying by a fifth, and the outcome of divisions, e.g. understanding  $3/4 = \frac{3}{4}$ . This understanding is used to solve problems in different contexts, including measures and statistics. The expectation is that children of all ages appropriately choose and use number facts, understanding of place value and different methods (starting with counting and mental methods and developing into mental and written methods), explaining their decision making and justifying their solutions.

**Geometric Reasoning** - this theme is about all aspects of understanding shape and space and includes application of understanding of number and calculation. The focus is on understanding properties of shapes and the relationship between them, using this understanding to solve problems including problems related to measures (perimeter, area and volume), and understanding movement within space. The expectation is that children of all ages appropriately choose and use facts and understanding, explaining their decision making and justifying their solutions.

**Measures and statistics** are included throughout as contexts for number sense, additive reasoning and multiplicative reasoning. Algebra, in Year 6, is the introduction of "the use of symbols and letters to represent variables and unknowns in mathematical situations that [pupils] already understand," and therefore appears in all four themes as part of generalisation of mathematical understanding. In Year 6 the National Curriculum brings addition, subtraction, multiplication and division together under one domain.

This framework continues to use the four themes in Year 6, but makes connections within the additive reasoning and multiplicative reasoning sequences to reflect this. The mathematics within the four themes is also connected so that, as you progress through the framework, learning builds on previous experiences in a spiral, both from within the same theme and from across the other themes.