# Christ Church School, Hampstead
# Curriculum statement: Maths

The Governing Body of Christ Church Primary School, Hampstead adopted this statement for Maths in November 2017 and it should be read in conjunction with our Teaching and Learning Policy and the school's published curriculum overview.

**The contribution of Maths to the primary curriculum**

Maths contributes to the acquisition of life-long skills and promotes enjoyment and enthusiasm for learning through practical activity, exploration and discussion. It helps children to make sense of the world around them through developing the ability to calculate, to communicate, to reason and to solve problems. Maths enables children to explore, understand, and appreciate relationships and patterns in both number and shape-and-space in their everyday lives.

Teachers seek to take advantage of all opportunities to teach, extend and promote mathematics through cross curricular focuses. Maths is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programmes of study are, by necessity, organised into distinct domains, but children should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems.

**Aims and Objectives of teaching Maths at Christ Church**

Maths learning builds from a concrete understanding of concepts where children are manipulating objects. When children are able to see concepts this way, they then need to understand the same concepts represented pictorially. Children are then ready for abstract representation before being able to apply their knowledge to different situations. However, we are mindful that some children will need to use objects, pictorial representations for longer periods of time in order to support their learning.

Children should be encouraged at all times to communicate their understanding of maths so that it clarifies their thoughts. Mental maths is of great importance, with number bonds, times tables facts and various strategies for calculation taught and practised at school with support sought from parents through homework activities. Calculation is taught using a consistent and progressive series of steps.

Through the teaching of Maths at Christ Church School we aim to

- ensure each child reaches their fullest potential in the knowledge and application of skills in maths.
- support each child in developing an understanding of Mathematics, according to their age and ability.
- promote enjoyment and enthusiasm for learning through practical activity,
- incorporate cross-curricular learning, exploration and discussion
- develop mathematical skills and knowledge and quick recall of basic facts in line with the National Curriculum Mathematics Programmes of Study
- promote confidence and competence with numbers and the number system
- develop the ability to think mathematically: solve problems through decision making and reasoning in a range of contexts
- develop a practical understanding of the ways in which information is gathered and presented
- explore features of shape and space, and develop measuring skills in a range of contexts
- develop communication skills
- develop both independence and co-operation
- understand the importance of mathematics in everyday life and promote mathematical thinking as a life skill.

**The Curriculum**

The expectation is that the majority of children will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Children who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems (in line with the mastery approach to mathematics) before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.

To supplement this policy we use our agreed approach to calculations document which guides our children though the four operations from EYFS to Y6, in alignment with the expectations of the statutory guidance in the National Curriculum. This emersion in mathematics from EYFS ensures that from an early age, children become competent in mathematics, fostering their ability to:

- secure number facts, such as number bonds, multiplication tables, doubles and halves
- calculate accurately and efficiently, both mentally and in writing
- draw on a range of calculation strategies
- make sense of number problems
- develop spatial awareness and an understanding of geometry, statistics and measure.

Children need to be taught and encouraged to use the following processes in deciding what approach they will take to a calculation, to ensure they select the most appropriate method for the numbers involved:

- Can I do it in my head using a mental strategy? (using rounding, adjustment)

- The size of an approximate answer (estimation)
- Could I use some jottings to help me?
- Should I use a written method to work it out?

**EYFS**

In the Early Years Foundation Stage child initiated learning opportunities are cross-curricular and children experience a wide range of open-ended problems and resources, both indoors and out. Children are given the opportunity to develop their understanding of number, measurement, pattern and shape and space through a combination of short, formal teaching as well as a range of planned structured play situations, where there is plenty of scope for exploration.

**KS1**

**Key stage 1 – Years 1 and 2**

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 [for example, concrete objects and measuring tools].

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.

**KS2**

**Lower Key Stage 2 – Years 3 and 4**

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 – Years 5 and 6**

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 four operations, including long multiplication and division, and in working with fractions, decimals and percentages.

Pupils should read, spell and pronounce mathematical vocabulary correctly.

**Times Table Challenge**

Starting in year 2, the children are introduced to a times table challenge in order to promote good mental recall of multiplication facts. As the challenge progresses throughout key stage 2 it expands to cover commutative law and the relationship with the inverse operations. Children are challenged to beat their own personal best score.

**Calculators**

Calculators are not be used as a substitute for good written and mental arithmetic. They are used near the end of key stage 2 to support pupils' conceptual understanding and exploration of more complex number problems, when written and mental arithmetic are secure. It is also acceptable for them to be used occasionally in order to check answers are correct in KS2.

**Review**

This statement should be reviewed every three years to ensure that it is a reflection of current best practice.

Revised by the school's maths subject leader and Governors Teaching Learning and Standards Committee in November 2017