

Mathematics Curriculum at Canterbury Cross Primary school

Aim of the mathematics curriculum:

At Canterbury Cross, we know that good mathematical understanding is important for the life opportunities of our pupils. We aim for our pupils to be able to:

- become fluent in the fundamentals of mathematics, including through varied and regular practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge fluently
- reason mathematically by following a line of enquiry, conjecturing on connections and generalisations, and develop an argument, justification, or proof using mathematical language
- problem solve by using mathematics to tackle a range of routine and non-routine problems with a growing level of complexity, including breaking down problems into a number of easier steps and persistently seeking solutions

How is the mathematics programme of study implemented?

The programmes of study for mathematics are set out year-by-year for key stages 1 and 2.

In Key Stage 1, mathematics teaching focuses on developing confidence and mental fluency in whole numbers, counting, and place value. Pupils work with numerals, words, and operations, using practical resources.

In lower key stage 2, mathematics teaching focuses on fluency in whole numbers and operations, developing efficient methods and accurate calculations. Pupils solve problems with fractions and decimal place value, draw accurately, and use measuring instruments.

In upper key stage 2, mathematics teaching focuses on expanding students' understanding of the number system, place value, and multiplication and division with fractions, decimals, percentages, and ratios. Pupils learn to solve complex problems, introduce algebra, and classify shapes with complex geometric properties.

Our Lessons

At Canterbury Cross, mathematics is taught daily, introducing, consolidating and reinforcing either new, or previously taught, concepts. Teachers rigorously plan and address any misconceptions, ensuring the continual development of pupils' mathematical understanding. The foundation of our approach resolves around the Concrete, Pictorial, Abstract (CPA) method in the delivery of mathematics, emphasising the utilisation of manipulatives and bar modelling. Lessons follow our three-part 'Practise/Apply/Reason' structure, supported by the CPA approach and use of manipulatives and bar modelling: developing the pupils' fluency with mathematical facts and concepts and creating opportunities for pupils to apply taught skills to a variety of contexts via problem solving and reasoning is at the heart of what we do. We integrate mathematical vocabulary into every lesson: justifying and explaining is a key focus for the reasoning part of the lessons.

Arithmetic

As arithmetic skills are essential building blocks for mathematics, the pupils are given plenty of opportunities to embed and master their key arithmetic skills on a weekly basis. Developed through consistent practice, the pupils complete arithmetic tests on a fortnightly basis in order to maintain true

fluency. Misconceptions, and gaps in the pupils' knowledge, are addressed, and this is used to inform future arithmetic-focused lessons.

Whole School Focus Targets

On alternate Fridays, whole school focus lessons are delivered to enhance the pupils' core skills. The targets are number based i.e. times tables, fractions and mental calculations. These lessons are taught on a termly basis, and are progressive, as they build on the pupils' prior learning and aim to extend their knowledge and understanding.

Times Tables Rock Stars

'Times Tables Rock Stars' is a carefully sequenced programme that we use at Canterbury Cross where the pupils practise their times tables regularly. Starting from Year 2, all pupils gain access to their personal Times Tables Rock star account, fostering healthy competition within the school community. This platform enables pupils to practise and refine their rapid multiplication skills with increasing accuracy.

EYFS

Mathematics is broken down in to two strands: Number and Numerical Patterns. In Nursery, children are taught to recognise numbers, have 1-1 correspondence, make patterns, 2D shapes and use informal language when describing size and weight. In Reception, children build on these skills and develop them further so that they have a deep understanding of number to 10, subitise, number bonds to 5, counting to 20, comparing quantities and exploring patterns with numbers to 10. Adults deliver Guided Maths lessons where the children are taught maths skills and how to problem solve using manipulatives.

Focused lessons are taught by adults to develop skills, and children are given opportunities to master these during independent learning time

How is Mathematics assessed focusing on prior knowledge and progression?

In every lesson, it is essential to evaluate the students' prior knowledge to ensure they advance and build on what they already know. Aligned with the National Curriculum, our curriculum accentuates application of skill and reasoning. Carefully planned and sequenced lessons ensure a progressive build-up of new knowledge and skills on previously taught concepts. Given that the maths lessons are structured according to a progressive model of 'Practise/Apply/Reason', our usage of AfL is essential. Additionally, the pupils' knowledge and understanding of key concepts and skills are tracked throughout the school using the school's summative assessment systems.

Our calculation policy shows the progression, from year to year, of formal written methods for the four operations addition, subtraction, multiplication and division. It focuses on teaching and evolving appropriate methods for each year group.

During assessment weeks, pupils are given opportunities to review and address test misconceptions. As well as this, 'bar modelling weeks' are delivered after each assessment point, whereby the pupils are given opportunities to develop their problem solving skills, mathematical fluency and number sense.

How do we ensure the Mathematics curriculum is for everyone?

Inclusivity lies at the core of our educational philosophy at Canterbury Cross ensuring that all pupils receive appropriate education. Our curriculum is designed to meet individual pupils' needs through small steps, targeted teaching; effective scaffolding; adaptable teaching techniques; adult support as well as the use of manipulatives ensuring all pupils reach their potential and build upon prior knowledge. Where pupils perform significantly below age-related expectations, a customised curriculum is provided to meet individual needs.

How do we ensure key content is remembered as pupils move through school?

The programmes of study for mathematics are set and followed across the key stages. Mathematical topics are revisited throughout the year and built upon. The structure of our maths lesson provides recapping and reviewing of prior knowledge to help make connections between the new and existing knowledge. Teachers overcome misconceptions and advance learning by reviewing knowledge through focused questioning and clear modelling of key skills. Assessments are used to assess pupils' understanding of important concepts and abilities, which subsequently influences planning for the future. Reviewing and teaching content specific to the year group standards is also the case for arithmetic and whole school focus target lessons.

How will the Mathematics curriculum prepare children for the future and allow children to apply the key skills learnt?

Upon leaving Canterbury Cross, we hope all pupils demonstrate fluency in fundamental mathematics and independently apply their knowledge to solve a range of increasingly complex problems. We hope for confident problem solvers in our pupils and competence in reasoning and thinking. We believe that the pupils will have mastered mathematical concepts and skills, demonstrating their proficiency in multiple ways.