

Charlestown Maths Policy- updated November 2022

Maths is the science of numbers, shape and space.

Aim of study:

We aim to develop lively, enquiring minds encouraging pupils to become self motivated, confident and capable in order to solve problems that will become an integral part of their future. 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 have conceptual understanding and are able to recall and apply their knowledge rapidly and accurately to problems
- can 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.

School curriculum:

Foundation Stage

The programme of study for the Foundation stage is set out in the EYFS Framework 2014. Mathematics involves providing children with opportunities to develop and improve their skills in counting, understanding and using numbers, calculating simple addition and subtraction problems; and to describe shape, spaces and measures.

Key Stage 1 and 2

The Programmes of study for mathematics are set out year by year for Key Stages 1 and 2 in the new National Curriculum (2014). The programmes of study are organised in a distinct sequence and structured into separate domains. Pupils should make connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Key Stage 1

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 (e.g. 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 1.

Lower Key Stage 2:

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:

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.

Wider curriculum

Throughout the whole curriculum, opportunities to extend and promote Mathematics should be sought. Within every Science topic, children will also develop their mathematical skills. This will help children appreciate how to Work Scientifically but also practise discrete mathematical skills. Nevertheless the prime focus should be on ensuring mathematical progress delivered discretely or otherwise.

Teaching and Learning

The approach to the teaching of mathematics within the school is based on:

- A mathematics lesson every day
- A clear focus on direct, instructional teaching and interactive oral work with both the whole class and smaller ability groups.

The curriculum is delivered by class teachers. All work is differentiated carefully in order to give appropriate levels of work and resources (including adults) are used well to maximise pupil progress. Class teachers take responsibility for their year group under guidance from the maths leader. Planning is based upon the National Curriculum (2014). Programmes of Study should inform medium term plans and subsequently weekly planning. Class teachers are responsible for the relevant provision of their own classes and individually develop weekly plans which give details of learning objectives and appropriate differentiated activities. Although planned in advance, they are adjusted on a daily basis to better suit the arising needs of a class and individual pupils.

Manipulatives

We make good use of a range of manipulatives throughout EFYS, KS1 and KS2. We use these to explore and secure understanding of concepts and procedures before moving to written and abstract methods. We aim to allow children to explore using these resources rather than mimicking what their teacher does.

We are careful to move away from them in good time to ensure that children do not rely on these manipulatives. While some children will need to use manipulatives to learn for longer

than others, most children should move away from them and work towards the abstract. We do this with the use of a pictorial representation alongside the manipulatives.

Calculation

See Calculation Policy

Inclusion and equal opportunities

All children are provided with equal access to the mathematics curriculum. We aim to provide suitable learning opportunities regardless of gender, ethnicity or home background.

Displays

All classrooms have a maths display which is updated to reflect current learning. The display will show the small steps for the current maths unit, relevant vocabulary and key examples/explanations for each lesson up to the current one.

Assessment

Our assessment serves to decide where to go next. We use assessment for learning on a lesson by lesson basis (live marking, verbal feedback) to assess individuals, groups and classes. Along with reviewing the books after the lesson steps can be taken to decide if there are gaps to fill and what to teach next. We use end of unit tests to review the key outcomes of that unit. We use this to further identify gaps or weaknesses. This informs future teaching and intervention.

Maths objectives are assessed regularly on O'Track. Each term summative assessment also takes place on O'Track where each child is assigned a 'level.' Day to day assessment for learning, end of unit tests and objective data helps to form these judgments alongside a formal termly maths assessment (PUMA).

Subject leader role

Maths leader to monitor maths provision throughout the school.