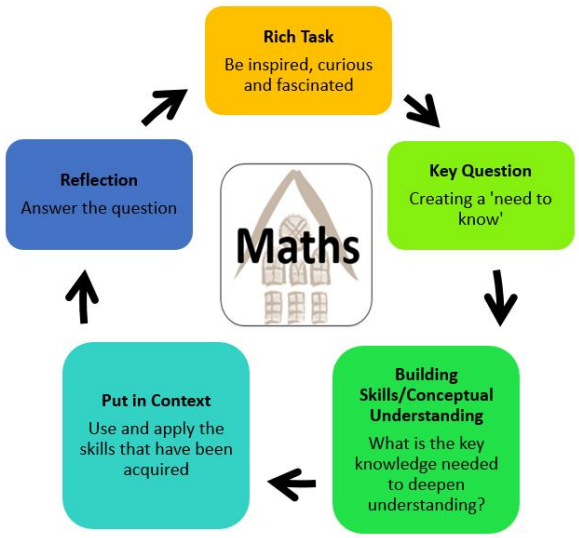
Cove Junior School
Curriculum Statement Maths

"Mathematics is not about numbers, equations, computations or algorithms: it is about understanding"
William Paul Thurston (American Mathematician)

Mathematics Enquiry Approach



National Curriculum Aims

The National Curriculum for maths 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

Curriculum Intent for Maths

"Mathematics is a creative and highly interconnected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore 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." **The National Curriculum 2014**

At Cove Junior School, we use a Concrete, Pictorial, Abstract (CPA) approach to teaching new concepts. This is a highly effective way of teaching that develops a deep and sustainable understanding of maths. Whenever a new mathematical concept is introduced, it is done so first through the use of concrete materials, which can be real objects or 'manipulatives' such as counters, Numicon or Dienes. This will then progress to be represented by pictures and finally by a number sentence.

We aspire for every child in every classroom having a "I can solve anything" attitude which links to our school values of independence, positivity, courage and resilience and our school motto of "Aiming High."

We also value mistakes as an essential part of learning, which links to the whole school growth mindset focus.

Curriculum Implementation for Maths

Much of our work at Cove Junior School is to provide children with a secure conceptual understanding that can underpin learning throughout their school life. In order to facilitate that, we have designed our own learning journeys with the key concepts at their heart. These are regularly reviewed to keep up to date with new mathematical thinking. We aim to revisit these core concepts regularly to support children's recollection and comprehension of those key ideas.

We provide rich opportunities for our children to use, apply and problem solve using mathematical knowledge and understanding.

The expectation is that the majority of children will move through the learning journeys at broadly the same pace. However, decisions about when to progress should always be based on the security of a child's understanding and their readiness to progress to the next stage.

It is vital that each child gets the right learning at the right time. Children who grasp concepts rapidly are challenged through being offered rich and sophisticated problems to broaden their mathematical thinking. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on, but will also have problem solving opportunities. Other children may need additional support such as pre-teaching of new concepts or vocabulary.

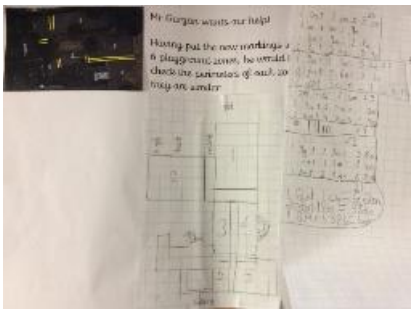
Curriculum Impact for Maths

Maths is a core subject and is therefore assessed regularly to ascertain the children's learning and retention of key concepts. This information is reviewed by senior leaders, the maths leader, year leaders and teaching teams to ensure that there is parity of learning across the classes and for all children.

Because children are at the centre of the teaching values at Cove Junior School, regular conferencing with children is undertaken to ascertain and share their views about maths.

We value the importance of maths across the curriculum. Maths skills are consolidated and enhanced when pupils have opportunities to apply and develop them across the curriculum. Poor maths skills hold back pupils' progress and can lower their self-esteem. Improving these skills can be tackled on a whole school basis by ensuring mathematical skills are used across the curriculum so that pupils become confident at tackling maths in any context. We also employ a 'no talk' teaching approach in some areas to ensure that children's difficulties with language are not holding them back in maths.

Linking maths into other subjects makes it much more interesting and enables children to understand that maths is all around us in our daily life.



Curriculum Links with other areas of the curriculum

Mathematical knowledge is applied and embedded in all areas of the wider curriculum:

Science

As part of STEM, maths and science are tightly linked together. Almost every scientific investigation is likely to require one or more of the mathematical skills of classifying, counting, measuring, calculating, estimating, and recording in tables or in graphs. Algebra is useful when using formulas in science. Converting between metric units and between imperial and metric units is also used in some scientific investigations. Data handling is used extensively in science. Most charts and graphs that are used in science are also used in maths.

English

- Reasoning and explanations
- Editing responses
- Reading and writing in maths books
- Interpreting and discussing results and patterns
- Making a video to explain a new concept
- Unpicking key maths vocabulary

PE

- Repeating sequences in gymnastics/dance
- Time, distance and speed in races
- Collecting data to analyse performance
- Averages to asses an athlete's performance

Geography

- Grid references
- Weather data
- Representing data
- Scales on maps
- Time zones

Computing

- Angles and directions using Scratch
- Representing data, formula and calculations in excel
- Using logic to solve problems in programming

DT

- Reading scales and measuring ingredients
- Ratio and proportion in recipes
- Measuring accurately to complete designs
- Estimation skills

History

- Time lines and dates
- Charts and graphs to present information and the analysis of charts and graphs

Art

- Ratio and proportion when mixing paint
- Geometry when developing observation skills and analysing artists

PSHE

- Numbers that come up in every day discussions and conversations e.g. 1/10 of the population is left handed

MFL

- Counting
- Times table facts in French
- Telling the time

RE

- Symmetry of religious buildings and patterns

Music

- Times and speed when looking at musical notation – beats per minute
- Equivalent fractions for musical notation (quavers, semi quavers etc.)