

Heatherside Junior School – Maths Overview

Intent:

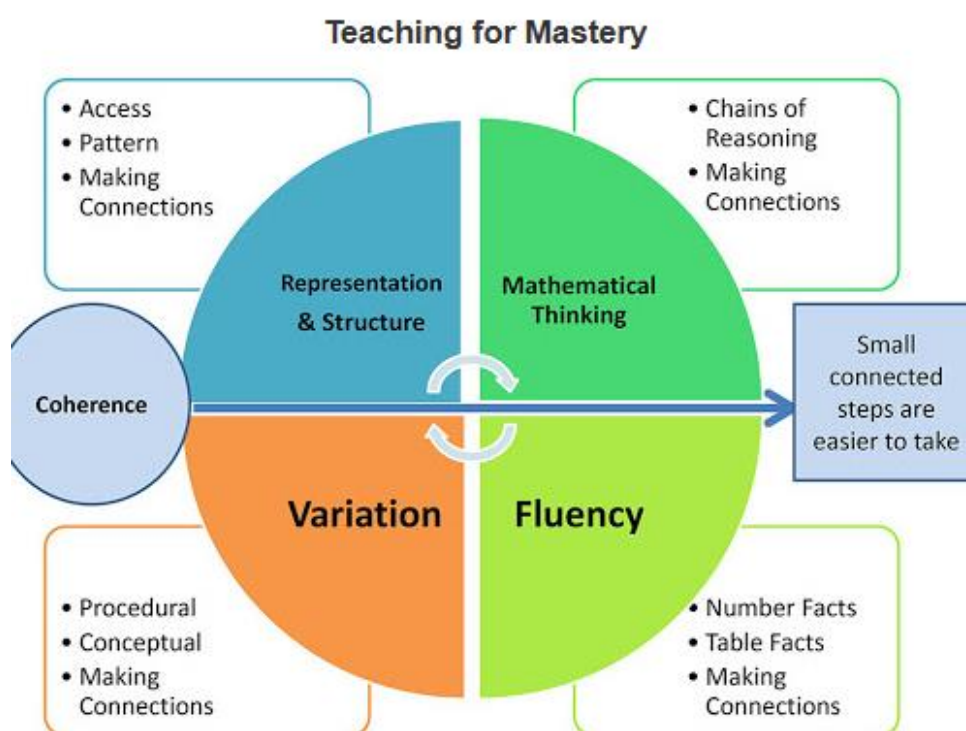
At Heatherside Junior School, we teach to the National Curriculum expectations, but also aim to inspire children to foster a love for mathematics and recognise the importance of mathematics today and in their future lives.

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 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

Mathematics is important in everyday life; therefore, the aim of mathematics at Heatherside is to develop the children's mastery of the subject so that they can apply their knowledge and understanding to solve problems, think logically, work systematically and accurately, justify their reasoning and make connections within real-life contexts.

At Heatherside, our teaching is underpinned by the belief that all children need a deep understanding of the mathematics they are learning. We aim to develop in each child a range of skills and concepts which allow them to use maths accurately and with confidence through the use of a concrete-pictorial-abstract approach. In order to develop their mastery of mathematics, the four big ideas in the teaching of mastery are central to designing collaborative learning opportunities: representation and structure, mathematical thinking, fluency and variation.



Implementation

We recognise that mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. When planning and designing lessons, careful consideration is made to the way that the mathematical structures and concepts can be represented to support children's understanding. Children are encouraged to think mathematically through completing tasks which involve variation to draw out children's understanding and to support with making connections. Common misconceptions are planned for and modelled to challenge children's thinking. Children become fluent in their number facts by chanting these and playing games, as well as looking at the connections, sequences and patterns to support their conceptual understanding. This way, learning is embedded and retained overtime.

To support with securing understanding in the long-term memory, mathematics is taught in longer unit blocks, to enable children to explore domains in depth. We follow White Rose Maths to sequence our learning across the year. These domains are broken down into small, progressive steps which enable children to develop their knowledge and skills overtime. Children are then provided with opportunities to revise these facts after they have been taught by making connections across the curriculum with other aspects of mathematics, for example, through mini quizzes or 'recap and refresh' questions at the start of lessons.

Maths is taught daily with lessons using a concrete, pictorial and abstract approach to guide children through their understanding of mathematical processes. Children are taught together in mixed ability classes to support all children to achieve. The expectation is that the majority of pupils will move through the school's programme of study at broadly the same pace. Scaffolding and additional support is provided for children who may be struggling to grasp a concept, which may include differentiated work, additional resources or pre-teach and closing the gap interventions. More able children are challenged to think more deeply about the concepts and apply them to unfamiliar contexts. This supports children to develop their mathematical thinking and language alongside each other, with children of all abilities challenged to reason and think deeply.

Impact

During each lesson, formative assessment takes place and feedback is given both throughout the lesson and when reviewing books. Where appropriate, next steps and misconceptions will be addressed through verbal and written feedback, although this will often be built into the next lesson so children have the opportunity to practice and apply the skills. Staff constantly use their assessments to inform planning to enable all children to progress. Year teams will work together weekly to agree the next steps for children by discussing learning and reviewing the outcomes in books.

At the end of each term, a summative teacher assessment is made and data is analysed to also support with planning and intervention. The end of the academic year sees children sit end of year group papers to monitor children's standardised scores and to support with measuring progress and impact. Year 6 children will sit the end of key stage two statutory assessments and they will have an opportunity to practice these and monitor their progress prior to the test.

The teaching of mathematics is also monitored regularly, at least half termly, through the data, book and planning monitoring, learning walks or observations. This information is used to identify strengths and areas for development. Feedback is then shared with teachers to support with any areas for development.

These factors ensure that we are able to maintain high standards, with achievement at the end of key stage two to well above the national average and a high proportion of children demonstrating greater depth. See the assessment page on the school website for further information on our results.

Contribution to SMSC and British Values:

- Enabling a better understanding of meaning and purpose in natural and physical phenomena.
- Promoting an interest in all living things: from the smallest micro-organism to the largest mammals and plants.
- Creating a curiosity about materials, forces, space and the beauty in natural objects.
- Encouraging an open-minded approach to others' ideas and an ability to draw conclusions based on evidence rather than personal views.
- Considering the environment, the use of natural resources and the effect on the future of the planet and its inhabitants.
- Discussions and practical activities in groups which encourages team work and taking roles of responsibility.
- Making links with discoveries in the past and work being carried out for our future.
- Exploring discoveries and contributions made by men and women across the world in all countries and cultures.

Mathematics: Overview of Programmes of Study

Year Group	Autumn Term	Spring Term	Summer Term
3	Number & place Value Addition & subtraction Multiplication & division	Number & place Value Written methods addition & subtraction (written method) Measurement - money Geometry – properties of 2D shapes / 3D shapes Statistics	Statistics Number & place Value Applying addition & subtraction Fractions Measurement – Mass and Capacity Measurement - time <i>(Roman numerals covered on Roman Day)</i>
4	Number & place value Addition & subtraction Multiplication & division A	Multiplication & division B Measurement - length, perimeter and area Fractions Decimals	Measurement - money Measurement - time Geometry – properties of shapes Statistics Geometry - position & direction
5	Number & place Value Addition & subtraction Multiplication & division Fractions	Multiplication & division Fractions Decimals & percentages Measurement – perimeter & area	Statistics Geometry – properties of shape Geometry - position & direction Decimals Negative numbers Measurement – converting units Measurement - volume
6	Number & place value, including negative numbers Addition & subtraction Multiplication & subtraction Number – order of operations Fractions	Percentages Decimals Measurement – converting units Measurement – perimeter, area & volume Geometry – properties of shape Ratio & proportion Algebra	Statistics Geometry – position & direction