



Maths Intent Statement

What is Maths?

Mathematics is the study of numbers, shapes and patterns.

Traditionally, Maths has been taught by memorising key facts and procedures, which tends to lead to superficial understanding that can easily be forgotten. At John Wheeldon, we believe that children should be able to select which mathematical approach is most effective in different scenarios. Mathematics is useful for solving problems that occur in the real world, so many people, besides mathematicians, study and use mathematics. Today some mathematics is needed in many jobs. People working in business, science, engineering, and construction need some knowledge of mathematics.

All pupils can achieve in mathematics. There is no such thing as a 'Maths person', that is the belief that some pupils can do maths and others cannot.

Intent

Maths is a journey and long-term goal, achieved through exploration, clarification, practice and application over time. At each stage of learning, children should be able to demonstrate a deep, conceptual understanding of the topic and be able to build on this over time.

There are 3 levels of learning:

- **Shallow learning:** surface, temporary, often lost
- **Deep learning:** it sticks, can be recalled and used
- **Deepest learning:** can be transferred and applied in different contexts

The deep and deepest levels are what we are aiming for by teaching maths using the Mastery approach.

A typical Maths lesson at John Wheeldon Primary Academy will provide the opportunity for all children, regardless of their ability, to work through Fluency, Reasoning AND Problem-Solving activities. We aim for our children to be confident to approach more challenging questions and understand the links between their arithmetic understanding and how they can then apply this to their problem solving and reasoning. We want our children to value Mathematics and clearly see the relevance of how they will use their understanding and methods in daily life.

Implementation

Multiple representations for all - Concrete, pictorial, abstract

Objects, pictures, words, numbers and symbols are everywhere. The mastery approach incorporates all of these to help children explore and demonstrate mathematical ideas, enrich their learning experience and deepen understanding. Together, these elements help cement knowledge so pupils truly understand what they've learnt.

All pupils, when introduced to a key new concept, should have the opportunity to build competency in this topic by taking this approach. Pupils are encouraged to physically represent mathematical concepts. Objects and pictures are used to demonstrate and visualise abstract ideas, alongside numbers and symbols.

Concrete - children have the opportunity to use concrete objects and manipulatives to help them understand and explain what they are doing.

Pictorial - children then build on this concrete approach by using pictorial representations, which can then be used to reason and solve problems.

Abstract - With the foundations firmly laid, children can move to an abstract approach using numbers and key concepts with confidence.

At John Wheeldon Primary Academy we use a mix of *White Rose* and *Classroom Secrets* [based on the *White Rose Scheme*] in Years 1 to 6 which builds on skills and understanding in a step by step and progressive way. *Fluent in 10* [arithmetic/ prior learning/ misconceptions] is used across KS2 at least three times weekly and *JWPA Multiplication Challenges* across the whole school, including EYFS. In years 1-5 there is an arithmetic focus session every two weeks in which children are taught a particular arithmetic skill and then have the opportunity to practice it along with the other skills that they have been learning as part of *fluent in 10* with the aim of improving their fluency across all areas of calculation. In year 6 these sessions are weekly in order to help prepare the children for the KS2 SATS

EYFS and KS1 are also participating in the NCTEM project - *Mastering Number*. This focuses on understanding number using the apparatus *reknerek*. The JWPA calculation policy is adopted across the school - EYFS to Year 6.

To incorporate active learning we use *Active Maths*, *Super Movers* and *GoNoodle*.

There are extra activities throughout the year to promote mathematical skills and thinking including participation in *World Maths Day* and *Numbers Day*.

Maths teaching and learning is monitored by the maths lead and Core SLT on a regular basis through learning walks, book scrutinies, staff discussions/audits and pupil voice.

The assessment systems used are bespoke to John Wheeldon Primary Academy. Children are assessed each term through an arithmetic paper and a reasoning paper written by the maths lead based on the long term maths plans. Year 6 are assessed through the use of previous SATS papers.

Impact

- Quick recall of facts and procedures
- The flexibility and fluidity to move between different contexts and representations of mathematics.
- The use of known facts - explaining reasoning [$300 \times 6 = ?$ I know $3 \times 6 = 18$ so I need to make it 100 times bigger]
- The ability to recognise relationships and make connections in mathematics and in real life in order to solve problems in a meaningful context
- Development and progression of mathematical vocabulary year of year as new vocabulary is taught as it is encountered and prior vocabulary is consolidated
- Consistent application of calculations for staff, pupils and parents
- A mathematical concept or skill has been *mastered* when a child can show it in multiple ways, using the mathematical language to explain their ideas, and can independently apply the concept to new problems in unfamiliar situations.

We are PROUD of all we do!