



Subject on a Page for Maths

Why you teach it - your purpose of study

The national curriculum for mathematics intends to ensure that all pupils:

1. 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.
2. Reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language.
3. 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.

The language of mathematics is international. The basic skills of mathematics are vital for the life opportunities of our children with transferable skills acting as a basis to our knowledge and understanding of a whole host of other subjects. Our aim is for all children to think mathematically and be fluent in mathematical skills and concepts, which will enable them to explore, reason and solve problems in a variety of situations and contexts. We follow the White Rose maths scheme.

The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged through being offered rich mastery and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice such as catch-up and keep-up programmes, before moving on.

INTENT

What you teach - your programme(s) of study

At Smallwood Primary School, we aim to develop numerate pupils who are confident with number & understand mathematical calculations, in order to develop problem solving skills. Developing Mathematical knowledge is a key life skill.

- Be ambitious & have high expectations of all pupils
- Ensure dedicated, sufficient time daily for Maths
- Teach a balance of fluency, reasoning and problem solving explicitly to all learners
- Follow White Rose scheme of learning, whilst taking into account the needs of the learners
- Provide high quality, regular training for all staff to ensure teaching is robust
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IMPLEMENTATION

How you teach it - your delivery of the above

Maths is taught daily and includes retrieval of previously taught content.

White Rose mastery model: Every class from EYFS to Y6 follows the White Rose scheme of learning which is based on the National Curriculum. Lessons may be personalised to address the individual needs and requirements for a class but coverage is maintained.

A sequenced curriculum

Using the White Rose scheme of work, staff at Smallwood are able to plan well-sequenced units of work, which follow a basic pathway of: fluency, reasoning and problem solving. Each unit is built upon prior learning in earlier year groups, which is briefly revisited before introducing new knowledge in line with curriculum expectations. Planning is always amended to meet the needs of each individual cohort, and so staff are not bound by the objectives within a unit of work. New concepts and ideas are introduced using either a: concrete, pictorial or abstract approach as we understand that each child is unique and learn in different ways.

Knowledge focused

In order to leave Smallwood with a good mathematical knowledge and understanding, the teaching of Maths is carefully considered and sequenced. By dividing key ideas into small units of work, pupils have the chance to develop a level of

automaticity within the subject, enabling them to build upon existing skills throughout their school career. This approach ensures that children can make links between topics, apply skills to various scenarios and deepen their knowledge of the subject.

Fluency, reasoning and problem solving

At Smallwood, there is an emphasis on the teaching of: Fluency, Reasoning and Problem Solving throughout the curriculum. Staff sequence each new topic so that the fluency aspect of the unit is delivered first. Being fluent with a set skill is fundamental and underpins a child's ability to apply that knowledge to more complex reasoning and problem-solving skills later on. Children who struggle with the fluency aspect of the curriculum will be offered additional support to ensure they have a good understanding of the fundamentals of a topic. Once children show proficiency in their fluency, they will then be challenged to apply their skills in more demanding tasks. As topics are revisited throughout the year, reasoning and problem solving become much more of a focus, as children will already have the necessary understanding that can be applied.

Number facts focus

Pupils in KS1 are given the opportunity to practice their understanding and rapid recall of number bonds. Similarly, children within KS2 are able to develop their recall of multiplication facts. Pupils in Years 2–4 are also tested weekly on their multiplication and division knowledge, following a sequenced series of quizzes, testing the children on various facts—in line with curriculum expectations.

Focus on Vocabulary

Like in English, Maths has its own unique and exciting terminology, which we strive to ensure our children become familiar with. Upon each working wall, staff will display key vocabulary relating to the current unit of work being taught. Key words are introduced at an age appropriate level & links made with previous vocabulary, so that by the end of KS2, children leave Smallwood with a rich mathematical vocabulary.

Place Value at the forefront

The concept of Place Value underpins all mathematical understanding. Being fluent with place value ensures that children can develop a sound knowledge of other curriculum areas. As such, at the beginning of each academic year, teachers deliver a place value unit (from the White Rose scheme of learning). This provides staff with the opportunity to revise key concepts with pupils and intervene early (where needed), allowing children to develop a strong foundation on which the rest of the Maths curriculum can then be built upon.

Opportunities

During the year, pupils have the opportunity to further develop their mathematical experiences in various ways. Pupils in Year 6 run Restaurant evenings and manage the income from selling eggs from our hens. In addition, local secondary school links allow pupils to experience maths at a higher level. Younger children benefit from Maths Week focus week and other ad hoc focus days.

Practical Approach

A practical approach to Maths is important to children throughout school, though its importance in introducing key concepts and ideas early on cannot be underestimated. In EYFS and KS1, there is a particular emphasis on using concrete resources to embed understanding. Though use of practical resources is encouraged throughout school, we are aware that concepts become more abstract as the years progress and as such, children then need to apply their prior knowledge and fluency skills to an increasing number of pictorial and abstract concepts and tasks.

Revisiting & Retrieving

At Smallwood, we aim for strong subject fluency—automaticity within the subject lends itself to children then being able to reason and problem solve with confidence. To help achieve this, classes begin lessons with 'flashback 4' (taken from White Rose)—an arithmetic starter which tests children on key concepts already taught. Repetition ensures key skills are continually practised and become embedded within the long term memory.

Assessment

Teachers continually assess children throughout each lesson (AfL) and will intervene immediately where a child demonstrates difficulty in understanding. This could be through immediate support, 1:1 or group intervention, or time spent with a TA to revisit particular areas of learning. Summative assessments take place twice a year (December and June), through NFER tests and past SAT papers (Years 2 and 6). Combined with AfL, teachers then use the data collected to make judgements on progress which are then discussed in pupil progress meetings with senior leaders. Tracking grids are also completed so as teachers can track the progress of children throughout the year and provide more personalised support where warranted, ensuring children make good progress.

High Quality CPD

The Maths subject leader will undertake relevant training through online or face to face courses, before then disseminating the information to staff through in-house training. Teachers may also be sent on more specialised courses as part of their ongoing CPD.

IMPACT

So what - your evaluations of the above

- Pupils show an enjoyment & curiosity for Mathematics
- Pupils use precise mathematical vocabulary
- Pupils are confident answering fluency, reasoning & problem solving questions
- Staff are confident about teaching all aspects of Maths due to high quality CPD
- All pupils make progress from a range of starting points
- Pupils in EYFS, Yr2 & Yr 6 achieve well in the statutory testing