



Maths Policy

Mathematics 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 (National Curriculum 2014). We aim for children in our school to:

- Become fluent in the fundamentals of mathematics through varied and frequent practice with complexity increasing over time.
- Develop conceptual understanding and ability to recall and apply knowledge rapidly and accurately.
- Reason mathematically; follow a line of enquiry, conjecture relationships and generalisations.
- Develop an argument, justification and proof by using mathematical language.
- Problem solve by applying knowledge to a variety of routine and non-routine problems. Breaking down problems into simpler steps and persevering in answering.

In EYFS and in relation to the EYFS Statutory Framework 2014, we aim for our pupils to:

- Develop and improve skills in counting.
- Understand and use number.
- Calculate simple addition and subtraction problems.
- Describe shapes, spaces, and measures.

Planning of Mathematics

The National Curriculum sets out year-by-year programmes of study for key stages 1 and 2. We use this to inform the content of our planning and this ensures continuity and progression in the teaching of mathematics. We ensure that across each term a breadth of study is planned, covering 7 key areas of mathematical learning: number and place value, addition and subtraction, multiplication and division, fractions, measurement, geometry and statistics. To assist with the planning of content, staff have access to White Rose, Inspire and Twinkl schemes of work. These schemes provide teachers with exemplification for maths objectives and are broken down into fluency, reasoning and problem solving, key aims of the National Curriculum. Using these schemes, teachers adopt a mastery approach to teaching and learning and with number at the heart of learning, focussing on knowledge and skills in the required key stage and supporting the ideal of 'depth before breadth'. The schemes and materials used to aid planning support pupils to work together as a whole group and provide plenty of time to build reasoning and problem solving elements into the curriculum. Progression is evident across year groups and long terms plans showing the progression in the subject are found in the front of each child's book (relative to their year group). These plans show what they will be taught in that year group and can be cross referenced to other year groups to understand the progression.

Planning in EYFS

The EYFS Statutory Framework 2014 sets standards for the learning, development and care of children from birth to five years old and supports an integrated approach to early learning. This is supported by the 'Development matters' non statutory guidance. Teachers use these documents to inform planning, enabling children to meet the Early Learning Goals in Number, Shape Space & Measure. In EYFS, plans are

delivered as appropriate to individual children with thought to where the children are now and what steps they need to take next.

Teaching and Learning for Mathematics

In Key Stage 1 and 2, each class undertakes a short mathematics session on arrival to school and at a later point, an extended daily session of mathematics. In EYFS, mathematics is incorporated in the learning across the curriculum and developed through adults skilfully intervening in play; however, a weekly adult led task is also put in place for all children to undertake, so that Mathematics is taught through an integrated approach.

We aim to provide a stimulating and exciting learning environment that takes account of different learning styles and uses appropriate resources to maximise teaching & learning. We promote teaching and learning in Mathematics through a range of ways:

- Using practical activities and games using a variety of resources.
- Developing problem solving to: challenge thinking and in turn encourage independence and cooperation, have the courage to make mistakes and learn from them, and to think logically and to work systematically and accurately.
- Using Individual, paired, group and whole class learning activities and discussions.
- Using Purposeful practise where time is given to apply their learning, especially within real life contexts to make Mathematics relevant.
- Using open and closed tasks.
- Developing a range of methods of calculating (e.g. mental, pencil & paper and using a calculator) to develop strong number skills (see our Calculation Policy for examples of methods we teach).
- Using computers as a mathematical tool.

Children are taught a variety of methods for recording their work and are encouraged and helped to use the most appropriate and convenient method dependent upon context. Marking of children's work is essential to ensure they make further progress. Work is marked against success criteria, in line with the school marking policy, and where appropriate, may include next steps. Children are encouraged to self-assess their work and given time to read teachers' comments and make corrections or improvements. Responses to marking are made as close to the work as possible, ideally at the start of the next lesson. Some pieces of work in mathematics can be marked by children themselves— particularly in years 5 & 6.

Teaching and Learning Number for Mathematics

Number, place value and the relationship between pairs of numbers (number bonds and multiplication facts) are the building blocks of mathematics. To ensure a broad understanding, number, place value and multiplication facts are taught every term in both key stages. Through our spiral curriculum, each area of learning is initially explored using practical activities and then, the learning is reviewed and expanded termly to incorporate more problem solving and opportunities to apply skills to promote retention and understanding of number.

In KS1 pupils:

- Link concrete and pictorial resources to abstract concepts to explore number bonds.
- Use number bond knowledge to solve addition and subtraction problems.
- Count on and back in multiples of 2, 5 and 10 and complete number sequences.
- Use TT Rockstars (times tables APP) to complete weekly homework challenges linked to targeted times tables.

In KS2 pupils:

- Apply the knowledge of number bonds, to 100, all forms of calculation, and use known number facts to paired numbers that make up any multiple of 100 (e.g. 2500 + 7500).
- Identify patterns within number sequences and extrapolate this information to missing number sequences and problems.
- Using known multiplication facts to calculate problems mentally or with formal written methods (e.g. 24 X 8).
- Use TTRockstars, an online game, to help learn times table facts. Class teachers set weekly homework challenges linked to targets linked to weekly assessments.

Assessment Practices for Mathematics

We use general assessment practices in this subjects as outlined at the start of the document under the heading 'Meeting children's learning needs through assessment practice'. Additionally, for this subject, we use these Specific assessment practices: formative and summative assessments.

Formative assessments use a range of formal and informal assessment, during the learning process, to modify teaching and learning activities to promote a broader understanding and reduce misconceptions of the mathematical concept under study.

This is achieved by:

- Timely, accurate and developmental feedback is given within lessons to extend and support learning and to identify and correct misconceptions.
- Fluency is assessed when completing independent learning activities.
- Opportunities are given for pupils to verbally explain, using appropriate mathematical vocabulary, key concepts and methods under study to demonstrate their understanding.
- End of unit assessments are given to identify pupils' attainment and those requiring further intervention.

Summative assessments evaluate the progress a pupil has made at the end of a term. Assessments set incorporate questions that cover a wide range of mathematical concepts and methodologies. They are used to improve attainment by identifying pupils' retention of previous taught concepts and targeting areas of learning where the learning is not secure. Summative assessments are used in the form of:

- Termly assessments covering all areas of learning taught within the term (includes both mechanical and problem solving questions).
- Post SATS papers or SATS style questions to assess developments in reasoning and problem solving skills.