

Mathematics at Windmill Primary School

Intent

'Every child a mathematician'

Mathematics is vital for the life opportunities of our children. Our aim is for all children to think mathematically, enabling them to verbalise, reason and solve problems in a range of contexts. We believe that every child has the right to achieve and it is the role of the teacher to unlock this potential. Children are given the opportunity to learn and access the curriculum from whatever point they are in their maths journey.

At Windmill Primary School, our Mathematics curriculum has been developed to ensure every child can achieve excellence in mathematics. Children can experience a sense of awe and wonder as they solve a problem for the first time, discover different solutions and make links between different concepts; providing pupils with a deep understanding of the subject through a concrete, pictorial and abstract approach. This ensures pupils fully understand what they are learning. The design of our curriculum caters for the needs of every child; including different abilities, pupils on the special educational needs and disabilities register and pupils with English as an additional language.

Key features of our Maths curriculum:

- High expectations for children
- Small step journey
- The answer is just the beginning – Focus on mathematical thinking, language and reasoning
- Concrete, pictorial and abstract resources

Planning:

The National Curriculum is delivered through the use of a range of resources. We are guided by the White Rose Programme of Study. We chose to base our Maths curriculum on White Rose because it has been designed by experts with secure progression. It has an excellent range of models and images to support learning and has well thought out small steps. However, we have seen that White Rose needs supplementing in order to meet the needs of our school. Therefore, we enhance this with some of the other best resources that we find. The termly overviews identify the objectives for each topic block, which are derived directly from the National Curriculum. The objectives in each block are broken down into a series of carefully planned small steps. The content should be taught in order as it is designed to gradually develop children's understanding and show progression.

How lessons are taught? Implementation

There are aspects of mathematics teaching which will be seen in every classroom at Windmill:

Lesson starters:

KS1: The lesson should start with a number song, or a counting activity. KS1 and EYFS also follow the Mastering Number programme, developed and recommended by the NCETM. This programme focuses on developing the fluency of number. This may not be part of the maths lesson, but would take place at some point during the day.

KS2: In Years 3 and 4, the lesson should include either a times table dance/song. This is to help the children to remember the patterns of the times tables in a different way. All children in KS2 complete Fluent in Five (Third Space Learning). This ensures the children regularly re-visit key arithmetic skills. This helps them develop their fluency and confidence. The retrieval of the four operations daily, helps to strengthen their neural pathways. Children are provided with the chance to see the concept modelled daily. In Years 5 and 6, there will be an additional reasoning question each day to help to practise applying their skills.

All children given the same opportunities to achieve the learning objective and access the learning through small steps that get progressively harder ✓

Children working significantly below will be working on a separate curriculum. This may be with a TA but planned by the teacher ✓

Teacher will model a new concept with conceptual variation ✓

Children working in mixed attainment pairs ✓

Connections to previous learning will be explicit ✓

All children using manipulatives to represent their learning and explain their thinking as part of guided practice ✓

Children showing what they have learnt in independent practice with questions that show procedural variation ✓

The journey of the lesson shows a movement through concrete, pictorial and abstract ✓

Stem sentences are used to give children the 'script' to talk about their maths ✓✓

Teachers using assessment for learning to guide the journey of the learning, asking questions that 'tease out' learning and thinking and the lesson is adapted around the outcome of these check points, finding out how children reached an answer ✓✓

Targeted questions for children who the teacher has identified as might be needing extra support or to check understanding ✓✓

Teacher modelling how to solve reasoning and problem solving questions ✓✓

When children have shown they have mastered a concept, they will show their understanding through questions that involve greater complexity ✓✓

Children who have been seen to be struggling with a concept will be picked up and addressed within the lesson. This might be through smaller group work with a teacher, additional practice on key skills, or an intervention/pre teaching to plug these gaps ✓✓

Celebrating amazing mistakes and talking through the thinking behind them ✓✓

Impact

- All children will have a greater conceptual understanding of number and calculation. They will be able to visualise and generalise more readily due to a more in-depth understanding.
- All children will be fully supported through accessing concrete equipment and use of visual models to support understanding.
- All children will be challenged through exposure to unfamiliar problems, development of reasoning skills and by exploring multiple ways to manipulate numbers and solve problems

Assessment timetable: Alongside formative assessment, that is used daily, we also carry out summative testing once a term. Below is the summative assessment timetable. These are used to help identify gaps and inform next steps in planning.

	Autumn Term	Spring Term	Summer Term
EYFS	Reception Baseline	Teacher Assessment.	Teacher Assessment VS ELG
Year 1	Teacher assessment.	NFER Paper 1 and Paper 2	NFER Paper 1 and Paper 2.

Year 2	NFER Autumn arithmetic and Autumn Reasoning	NFER Spring arithmetic and Spring Reasoning	End of KS1 SATS
Year 3	NFER Autumn arithmetic, Test 1 and Test 2.	NFER Spring arithmetic, Test 1 and Test 2.	NFER Summer arithmetic, Test 1 and Test 2.
Year 4	NFER Autumn arithmetic, Test 1 and Test 2.	NFER Spring arithmetic, Test 1 and Test 2.	NFER Spring arithmetic, Test 1 and Test 2.
Year 5	NFER Autumn arithmetic, Test 1 and Test 2.	NFER Spring arithmetic, Test 1 and Test 2.	NFER Summer arithmetic, Test 1 and Test 2.
Year 6	KS2 SATS	KS2 SATS test	KS2 SATS

- Tests are to only be used once. Data carries over from the previous term- so we do not use the same autumn test for a baseline and then re-do the same test later in the term.
- Teachers will record the standardised score on insight.
- For children working significantly below, the Sandwell Test will be used to monitor progress.
- Teachers can carry out end of unit mini-assessments for formative assessments.

Official Interventions:

- Plus 1
- Power of 2
- Same day intervention is also used to close any gaps for the next lesson.

Feedback:

At Windmill Primary school, formative assessment is integrated into the lesson. During the lesson, children will share their answers with the teacher, verbally, on whiteboards, or in books. Teachers use this information to pick up misconceptions and address these in the lesson.

The objective is highlighted green if the children have achieved and pink if they have not.

