

Greenways Primary Academy

A part of Windsor Academy Trust



Our Approach to Teaching Maths.

At Greenways Primary, we truly believe that the language of mathematics is international and that the basic knowledge components of mathematics are vital for the life opportunities of our children. Mathematics teaches us how to make sense of the world around us through developing a child's ability to calculate, to reason and to solve problems. It provides children with a foundation for understanding the world around us and to build enjoyment and curiosity.

With this in mind, our vision is to equip all of our children with the tools required to think mathematically and calculate fluently, enabling them to reason and solve problems in a range of different contexts. We aim to foster a love of mathematics by unlocking every child's mathematical potential. Through a concrete, pictorial and abstract approach, the children at Greenways Primary are afforded opportunities to experience a sense of awe and wonder as they solve a problem for the first time, discovering different solutions and making links between different areas of mathematics.

The aims of mathematics are:

- To promote enjoyment and enthusiasm for learning through practical activity, exploration and discussion
- To be competent in:
 - Numbers and number systems.
 - Calculations, both mental and written.
 - Measurement of shape and space.
 - Handle data and solve problems in all these areas
 - Using algebra to problem solve with number
- To develop the ability to solve problems through decision making and reasoning in a range of contexts.
- To develop a practical understanding of the ways in which information is gathered and presented.
- To explore features of shape and space, and develop measuring skills in a range of contexts.
- To understand the importance of mathematics in everyday life.
- To develop flexible problem-solving behaviours.

- To ensure that all children will develop the necessary Numeracy skills

Teaching and Learning Style

The academy uses a variety of teaching and learning styles in mathematics lessons. We do this through a structured approach based on short whole-class teacher input followed by a focused task. During these lessons, we encourage children to ask, as well as answer mathematical questions, and we promote the use of mathematical language through the use of intentional and consistent language that promotes challenge and aspirations. Teacher-led inputs use a concrete, pictorial, abstract approach to support children's understanding.

Children have the opportunity to use a wide range of resources such as number lines, number squares, digit cards and small apparatus to support their work. Children use ICT in mathematics lessons where it will enhance their learning. Wherever possible, we encourage the children to use and apply their learning in everyday situations and demonstrate 'Mastery' through planning extension tasks using reasoning and mastery tools such as White Rose Maths to deepen their knowledge and understanding and to challenge their thinking. In all classes, there are children of differing mathematical ability.

We recognise this fact and provide suitable learning opportunities for all. We achieve this through a range of strategies – in some lessons through the provision of further practice of fluency skills or through the addition of further challenge activities. We also provide additional support or challenge through teacher-led group support. We use classroom assistants to support and challenge children and to ensure that work is matched to the needs of individuals.

Mathematics Curriculum Planning

Mathematics is a core subject in the National Curriculum and we use the National Curriculum as the basis for implementing the statutory requirements of the programme of study for mathematics.

The Primary National Curriculum gives a detailed outline of what we teach in the long term, identifying the key objectives for each year group/stage.

Our programme of study for mathematics clearly sets out what will be taught and learned at each point in the year for all year groups. We understand that a carefully planned coherent curriculum will enable pupils to know more and remember more. Our long-term overviews for Maths are inline with the White Rose Maths. This clearly sets out the order and the time scale for the teaching of Mathematical units for each year group. These units are all broken down into 'small steps', which are the individual lessons that teachers deliver. These 'small

steps' are progressive, building on content from previous year groups. The language, strategies and visual representations to support learning are also progressive through the use of the White Rose Maths teaching resources.

The tasks for each lesson are progressive, starting with more fluency-based tasks and leading to problem-solving and reasoning style questions. KS1 may carry out their activities in workbooks, however, children will also each have their own Maths exercise book. During lessons, teachers will be carrying out assessments for learning to identify children who may need support or further fluency practice. When this is identified children will be provided with additional fluency tasks which they will then complete in their maths exercise book. Challenge tasks may also be provided for children, which will be completed in their exercise book. In KS2, children will each have their own Maths exercise book to complete their learning in.

Special Educational Needs

Through the equal opportunities policy, pupils with special educational needs will be included in all mathematics lessons. Staff, where appropriate, will modify activities to ensure children with special educational needs access the same mathematical curriculum as their peers. Teachers adapt lessons, whilst maintaining high expectations for all, so that all pupils have the opportunity to meet expectations. Scaffolding and support may be provided through the provision of concrete and pictorial resources.

Monitoring

Mathematics is monitored in a number of different ways. All subject leaders at Greenways Primary are given time throughout the year to monitor, in depth, the different areas of their subject. One of the main areas of monitoring is pupil interviews. Giving pupils a voice in how each subject is taught is a valuable way of understanding their likes and dislikes and ways to improve the mathematics curriculum.

Lesson observations and book looks play another important role in providing valuable feedback about the quality of teaching and learning happening across the academy. This provides an opportunity for the mathematics leader to evaluate the quality of education in a given subject area and identify priority areas for development, which subsequently inform future investment in CPD.

Assessment for learning

At Greenways Primary we understand that effective assessment is critical to teaching. Assessment is utilised as a tool to check for prior knowledge and understanding, it enables staff to identify misconceptions and gaps and to provide high quality feedback for pupils.

To assess the learning of mathematics, we use White Rose Maths assessments; we carry out end of unit assessments. These are an important tool as they support teachers to identify any outstanding gaps or misconceptions in learning immediately after a unit has been taught and allows the teacher to address them effectively. We also carry out termly assessments to measure progress against the areas of Mathematics taught that term, so that children's progress can be monitored. We test and use teacher assessment to identify where the children are in their learning and what their next steps will be.

Each half term, children are encouraged to be reflective learners and are given the time to identify what they feel has gone well and is a particular strength in maths, as well as identify what they feel they still need to work on and develop. These are supported through pupil-teacher discussions. In the foundation classes, the children are constantly assessed against the Early Learning goals.

Teachers carry out assessments towards the end of the academic year, and we use these to assess progress against the academy and national targets. We can then set targets for the next academic year and make a summary of each child's progress before discussing it with parents. Class teachers pass this information on to the next teacher at the end of the year, so that s/he can plan for the new academic year. Teachers make the long-term assessments with the help of end-of-year tests and teacher assessments.

We use the National tests for children in Year 2 and Year 6 and also make annual assessments of children's progress measured against the objectives in the 2014 National Curriculum.

Resources

There is a range of resources to support the teaching of mathematics across the academy. All classrooms have an interactive whiteboard loaded with software appropriate for age.

To ensure a consistent approach to mental and formal strategies for the four operations, a Visual Calculation Policy is provided. This provides visual examples for the children and teachers to supporting the teaching of different methods and strategies.

Teaching staff all have access to White Rose Maths accounts. This is an invaluable tool for teachers. It provides any-time access to CPD in all different areas of Mathematics to support teaching and learning. This is also a useful tool for staff entering new years groups and

ECTs. Teachers also have access to a number of interactive whiteboard resources to support through the use of visual aids and supports during a lesson.

Number lines, hundred squares and a wide range of appropriate small apparatus are available in classes. Other apparatus are available from the central storage area. Staff also have access to a 'Flashback 4' resource for their year group. This should be used at the beginning of each Maths lesson as it provides an invaluable opportunity for children to revisit previous learning. It is also a great tool for teachers to address any misconceptions and provides a further opportunity to identify individuals who may need further practise in a specific area of Maths. The 'Flashback 4' resource ensures core skills are continuously 'simmering' for the children.

All children in Y2-6 have a log in to the online resource – Times Tables Rockstars. This resource can be accessed both in the academy and from home. This provides children with an opportunity to practice their recall of the multiplication facts, thus developing their fluency and automaticity.

Additional features will include:

- Whole Academy Targets on a year by year basis
- Mental recall of times tables up to and including 12 x 12
- Mental recall of division facts up to and including 12 x 12

The New National Curriculum 2014

Five Key Themes:

- Number inc problem solving
- Measurement
- Geometry
- Statistics
- Algebra

In all these areas children need to be confident with recall of number facts, so we aim to strengthen this area to create this confidence.

Organisation

- All learners to have access to the same tasks in lessons, however teacher assessment within lesson may inform where the activities are pitched for individuals.
- A minimum of 5 mathematics teaching hours per week
- The teaching of mathematics will continue in all curriculum areas where appropriate
- Resources – within the academy there are sufficient resources, which will allow staff to cover all aspects of NC and provide for progression.
- The coordinators role will be in line with the academy policy and guidelines for the curriculum leader.
- ICT will be used effectively and when appropriate.
- Health and Safety will fall in line with Academy Policy
- Staff will ensure that texts / resources / associated activities are such to motivate all pupils regardless of gender, race or creed. (see Equal Opportunities Policy)
- Lessons will be planned to meet the needs of SEN & Gifted and Talented children.
- The curriculum is planned in accordance with the NC documentation. Continuous assessment will be used to inform planning and end of year tests will take place for R to Y6.
- Staff will adhere to the academies marking policy, providing 'Challenges' and 'Further Practice' for children to progress learning further.
- TA's to be deployed where appropriate to support and enhance learning.

Success Criteria

- Lessons are planned with objectives in line with White Rose Maths Long term overview and small steps, which correlate with the National Curriculum.
- Formative and summative will be used to enhance pupils' and teachers' performance.
- Relevant training to be provided for teachers to support subject knowledge and up to date year group expectations.