

Grange Primary School

Mathematics Policy



Intent

At Grange Primary school our aim is to provide effective and engaging learning opportunities to equip children with the foundational knowledge and skills to become confident mathematicians as they advance through school. We believe that every child has the potential to succeed in mathematics, and beginning from the Early Years, we foster a love of the subject through activities that promote curiosity, critical thinking and problem solving. Through a combination of teacher-led instruction and child-led exploration, we aim to develop children's understanding of mathematical concepts, their ability to reason and best ways to communicate their mathematical thinking. We encourage children to learn from their mistakes and challenge them to persist until they find the answer: fostering resilience in the face of challenge.

We want the children of Grange Primary School to develop a sense of curiosity and enjoyment of mathematics. Through the use of a mastery approach to the teaching and learning of mathematics, our goal is for all learners to enjoy and, more importantly, succeed in mathematics. Grange has taken on a curriculum that is ambitious and designed to give all learners, particularly the most disadvantaged, the knowledge and cultural capital they need to succeed in life. Children take part in daily mathematics lessons which foster an enquiry-based approach, reasoning skills are built on and children enjoy a daily discussion around the maths they learn.

Learners at Grange Primary School:

- have a sense of the size of a number and where it fits into the number system
- know by heart number facts, such as number bonds and multiplication tables
- use what their knowledge to answer questions mentally
- accurately and efficiently calculate both mentally and with pencil and paper, drawing on a range of calculation strategies
- make sense of number problems, including non-routine problems, and recognise the operations needed to solve them
- explain their methods and reasoning, using correct mathematical vocabulary
- be able to justify whether their answers are reasonable, and have strategies for checking them where necessary
- suggest suitable units for measuring, and make sensible estimates of measurements
- explain and make predictions from the numbers in graphs, diagrams, charts and tables.

Implementation

Teachers' subject knowledge is developed through regular CPD supported by the Maths Hub, NCETM and White Rose. Senior leaders provide effective support for teachers and support staff who need additional development. The maths curriculum is coherently planned and sequenced towards cumulatively developing sufficient knowledge and skills for future learning. Children at Grange build upon prior learning and develop a deep, conceptual understanding of each topic over their learning journeys. Adults enable children develop fluency in their recall of key facts - a whole school approach to the teaching of calculation strategies is deployed. Mathematical concepts that are taught earlier in the curriculum are revisited in the context of a new area of mathematics. This helps learners to make connections between different mathematical concepts. Retrieving, using and applying concepts regularly, transferring to new contexts helps develop fluency as well as conceptual understanding.

Our maths curriculum helps learners to recall in the long term, the content they have been taught and to integrate new knowledge to larger concepts. Children are provided with the tools they need to develop their mathematical thinking, conceptual understanding, language and communication through the use of a concrete - pictorial – abstract approach to teaching and learning.

Grange Primary School uses a variety of teaching and learning styles in mathematics lessons. This ensures our children develop secure knowledge, skills and understanding.

Children at Grange are taught daily lessons that have a mix of whole-class and targeted group teaching. During lessons, we encourage children to ask and answer questions to develop their understanding. They are given the opportunity to use a wide range of resources such as number lines, number squares, digit cards and concrete manipulatives to support their work appropriate to their age and ability level.

Contribution in Mathematics to Teaching in Other Curriculum Areas

At Grange School Primary School, we give our children opportunities to apply their mathematical knowledge in skills across the curriculum. Children are exposed to a range of tasks, across different subjects, where they can relate their learning to real world situations.

Computing

At Grange Primary School, the effective use of computing can enhance the teaching and learning of mathematics when used appropriately. When considering its use, we consider the following:

- *computing should enhance good mathematics teaching. It can be used in lessons to support good practice in teaching mathematics*
- *using computing in a particular lesson or sequence of lessons is directly related to the teaching and learning objectives for those lessons.*
- *computing is used if the teacher and/or the children can achieve something more effectively with it than without it.*
- *opportunities for integrating mathematics into computing units of work are identified in planning, where appropriate*

Science

At Grange Primary School, a majority of scientific investigations or experiments are likely to require mathematical skills of classifying, counting, measuring, calculating, estimating and recording in tables and graphs.

In science children order numbers, including decimals; calculate simple means and percentages; use negative numbers when working with temperatures; decide whether it is more appropriate to use a line graph or bar chart; and plot, interpret and make predictions and evaluations from graphs.

Teachers plan opportunities to explicitly incorporate mathematical skills into their science lessons.

Art, Design and Technology

At Grange Primary School, measurements are often needed in art, design and technology. Many patterns and constructions are based on spatial ideas and properties of shapes, including symmetry. Designs may need enlarging or reducing, introducing ideas of multiplication and ratio. When food is prepared a great deal of measurement occurs, including weighing and the measurements of liquids; working out times; and calculating cost.

History, Geography and Religious Education

At Grange Primary School, in history and geography children will collect data by counting and measuring and make use of measurements of many kinds. The study of maps includes the use of co-ordinates and ideas of angle, direction, position, scale and ratio. The pattern of the days of the week, the calendar and recurring annual festivals all have a mathematical basis. For older

children historical ideas require understanding of the passage of time, which can be illustrated on a timeline, similar to the number line that they already know.

Physical Education and Music

At Grange Primary School, athletic activities require measurement of height, distance and time, while ideas of counting, time, symmetry, movement, position and direction are used extensively in music, dance, gymnastics and ball games.

Personal, Social and Health Education (PSHE) and Citizenship

At Grange Primary School, mathematics contributes to the teaching of personal, social and health education, and citizenship. The work that children do outside their normal lessons encourages independent study and helps them to become increasingly responsible for their own learning. The planned activities that children do within the classroom encourage them to work together and respect each other's views.

Supporting all Learners

In all classes there are children with different mathematical ability and understanding. We recognise this fact and provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this through a range of strategies: in some lessons through adapted group work and in other lessons by organising the children to work in pairs on ability-based open-ended problems. We use classroom assistants to support targeted groups and to provide continuous feedback to ensure that work is matched to the needs of each child.

Through careful, targeted planning, we at Grange Primary School ensure:

- children are given opportunities for practical activities to support learning
- children develop mental and oral strategies with an emphasis on speed recall of number bonds and multiplication tables
- there is a development and application of mathematical vocabulary
- stem sentences are used to support understanding and structure conversation
- children are given problem solving opportunities
- there is time for individual, small group and whole class discussions
- children are exposed to both open and closed tasks
- children are taught a range of methods of solving problems
- children understand mathematics through a process of enquiry and experiment
- there is regular use of ICT to reinforce, develop and apply learning
- all children are engaged in a challenging and robust curriculum
- reasoning 'exit questions' are provided daily for all children to ensure challenge

Schemes of Work

The National Curriculum describes what must be taught in each key stage. Grange Primary School follows the White Rose scheme of work, which provides detailed guidance for the implementation and rationale for the order of lessons and ensures progression in the teaching of mathematics.

Every teacher in Grange Primary School has access to the scheme of work for teaching mathematics and the curriculum map outlining progression. In early years, the curriculum is guided by the Early Learning Goals.

Early Years Foundation Stage

At Grange Primary School children follow the early years foundation stage curriculum - Birth to 5 Matters. We provide all children the opportunity to talk and communicate in a wide range of situations and to practise and extend their increasing vocabulary and numeracy skills. They have the opportunity to explore, enjoy, learn about, and use mathematics throughout their provision every day. Mathematics is planned on a half termly basis and assessed through ongoing formative assessment. Mathematics is taught both as a discrete subject and is interwoven through the early years curriculum and provision to provide children opportunities to use their mathematics skills in real life situations.

Key Stages 1 and 2

In KS1 and KS2 daily maths lessons are between 50 minutes and one hour. Each lesson includes elements of mental maths fluency, to practice the skills; reasoning, to deepen understanding; and problem solving, to apply skills. At the end of each lesson children complete an exit question based on an appropriate problem-solving or reasoning task. Children complete this individually or with a partner to ensure all children, no matter their ability, are given opportunities to reason and apply their learning.

From Early Years, we teach pupils specific mathematical vocabulary and encourage children to become fluent in their approach in the fundamentals of mathematics, to reason mathematically and to solve problems by applying their knowledge in a number of areas. We encourage talk throughout lessons with the use of stem sentences, allowing children to express themselves orally to help them build communication skills and deepen their understanding - it forms an important part of developing understanding of mathematical concepts and their ability to reason mathematically. This also supports those with English as an additional language to participate on equal terms with their native-speaking peers.

This serves our school community well as 51% of our children speak English as an additional language and the curriculum focus on language and communication allows pupils to deepen their understanding by explaining, solving problems, justifying, and proving by using mathematical language.

Parental Involvement

At Grange Primary School, we recognise that parental involvement plays a vital role in helping children achieve their best. We actively encourage parents to become involved with their children's development in mathematics through:

- *parent mathematics workshops*
- *parents' meetings twice a year, along with opportunities to look at children's work*
- *the school's 'open' attitude to visits from parents/carers, where teachers make themselves available whenever a discussion is needed.*
- *arranging maths mornings and events held in EYFS and KS1 classrooms*
- *Number Day celebrations*
- *use of homework materials, maths games and subscription to Mathletics online learning and Time Table Rockstar*
- *class newsletters informing parents of curriculum information for the upcoming half term and how they can best support at home.*
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Resources

At Grange Primary School, resources for the delivery of the maths curriculum are stored both centrally in satellites and in classrooms. Everyday basic equipment is kept in maths trays in classrooms. Children are taught how to best use concrete resources and are encouraged to use them independently to support their understanding when learning.

At Grange Primary School, we recognise the important role displays have in the teaching and learning of mathematics by having maths work and process displayed in classrooms. Every class has a 'Maths Working Wall' which is a visual aid to support children with their work.

Monitoring

Assessment and Record Keeping

At Grange Primary School, we continuously assess our children through questioning, formative and summative assessment, and recording their progress. We see assessment as an integral part of the teaching process and endeavour to make our assessment purposeful - allowing us to match the correct level of challenge to the needs of the children ensuring purposeful progress.

Reporting

At Grange Primary School, all parents receive written reports of their child's progress in the autumn term and an annual detailed written report in summer for which there is a summary of their child's effort and progress in mathematics over the year. Parents also have opportunities to discuss progress at two parent's evenings. Within curriculum newsletters parents receive information on planned areas of learning for each half term.

Equal Opportunities

At Grange Primary School, as a staff we endeavour to maintain an awareness of, and to provide for equal opportunities for all our children in mathematics. We consider cultural background, gender and Special Educational Needs, both in our teaching attitudes and in the resource materials we use with our children.

All children are provided with the tools and support they need in order to be successful.

Special Educational Needs

At Grange Primary School, we aim to include SEND children in mathematics lesson so that they too can benefit from the emphasis on oral and mental work and by listening and participating with other children in demonstrating and explaining their methods.

Where necessary, teachers will, in consultation with the SENDCo, draw up a target within an Individual Educational Plan for a child. If a child's needs are particularly severe, they will work on an individualised programme written in consultation with appropriate staff. When planning, teachers prepare work that supports children's needs through adapted tasks and/or the use of support staff.

Role and Responsibilities of Mathematics Subject Leader

- *monitor planning, teaching and learning in mathematics, to ensure continuity and progression.*
- *ensure there is well sequenced and progressive curriculum map which contains the key knowledge, skills and vocabulary children need to be procedurally fluent in mathematics.*

- *monitor standards in mathematics throughout the school, including SEND and gifted and talented*
- *identify strengths and areas for improvement that lead to drive improvements within the school.*
- *keep up to date with new initiatives and train staff on these (also to facilitate in or out of school training for staff).*
- *Feed back to the Headteacher on standards in mathematics*

Monitoring and Review

At Grange Primary School, subject leaders support colleagues in their teaching, by keeping informed about current developments in mathematics, and by providing a strategic lead and direction for the subject. Leaders use allocated management time to review samples of children's work, and to observe mathematics lessons across the school.

The quality of teaching and learning in mathematics is monitored and evaluated by the headteacher as part of the school's agreed cycle of lesson observations. A named member of the school's governing body is briefed to oversee the teaching of mathematics. The mathematics link governor meets with the subject leader to review and ensure everyone is informed.

Impact

Teaching mathematics through mastery beginning in the Early Years has a significant impact on students' understanding and confidence in their mathematical abilities. The impact of this approach to the teaching and learning had led to children's increased enjoyment, resilience, understanding and attainment in maths. By teaching students through the process of breaking down concepts into smaller, more manageable pieces - with the use of manipulatives and pictorial representations - students are able to build a strong foundation of understanding. Learners know more, remember more and are able to do more mathematics because the curriculum has developed their ability to take new ideas or relationships and incorporate them into their developed understanding. Children are able to determine connections with ideas and relationships they have previously encountered.

The mastery approach allows pupils at Grange Primary to build a strong foundation of understanding, allowing them to apply their knowledge in a variety of situations - confidently moving forward as they encounter more complex concepts and problems. Students make sense of the mathematics they are learning, and have more memorable and enjoyable experiences, encouraging long-term mathematical memory. They are also able to do more as they understand how to build upon their prior learning and apply it to solve problems. The curriculum provides opportunities and guides teachers in asking questions that reveal learners' understanding of a concept. It provides opportunities for meaningful dialogue to take place in lessons. It is by giving learners opportunities to talk, and by listening carefully to what they say, that teachers gather some of the richest data on their understanding. This data influences next steps, future planning and teaching, while providing formative assessment opportunities. In addition, termly summative assessments provide information to further support teacher judgements and identify any gaps in understanding.

Children at Grange Primary gain the opportunities to practise, reinforce and discuss their processes, which helps students retain knowledge and build fluency in order to become life-long mathematicians.

Disability Equality Impact Assessment

This policy has been written with reference to and in consideration of the school's Disability Equality Scheme. Assessment will include consideration of issues identified by the involvement

of disabled children, staff and parents and any information the school holds on disabled children, staff and parents.

Date to be review: 28.02.2026

Grange Primary School