

School Maths Policy

Nutgrove Methodist Primary School



Approved by:

Date:

Last reviewed
on:

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by:

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Introduction

This policy outlines how we enable all our learners to achieve the highest possible standards in Mathematics. It sets out our agreed approach to the planning, delivery and assessment of Mathematics across our school.

We follow the recommendations outlined in the National Curriculum DfCS guidance contained in the documents:

- The Early Years Foundation Stage (Setting the standards for learning, development and care for learners from birth to five).
- National curriculum in England: mathematics programmes of study

Intent

Mathematics helps learners to make sense of the world around them through developing their ability to calculate, to reason and to solve problems. It enables learners to understand and appreciate relationships and pattern in both number and space in their everyday lives. Through their growing knowledge and understanding, learners learn to appreciate the contribution made by many cultures to the development and application of mathematics.

At our school we aim to:

- Nurture positive attitudes to maths so that all learners can experience enjoyment and success
- Develop learners' abilities to reason and think clearly and logically and to work systematically and accurately.
- Develop an appreciation of relationships within Mathematics.
- Develop ability in the learners to express their knowledge of Mathematics fluently, to talk about the subject with assurance, using correct mathematical language and vocabulary.
- Develop learners' knowledge, abilities, skills and understanding in mathematics so that they develop resilience so that they all meet and others exceed their age-related expectations
- Develop mathematical understanding through systematic direct teaching of appropriate skills and knowledge so all learners can build firm foundations and be secure in their maths knowledge at each point in their learning journey.
- Equip learners to transfer mathematical skills and knowledge across the curriculum and to the wider world as a key life skill.

Implementation

Teaching and Learning Styles

Our staff use a variety of teaching strategies to cater for the variety of learning styles of all learners in mathematics lessons. We expect to find positive class learning environments with a focus on challenging and methodical work. We do this through delivering high-quality daily lessons through the use of a Maths Mastery approach which has a high proportion of whole-class teaching, practice, reinforcement and application to problem-solving situations. We ensure that reasoning runs through each lesson and learners are appropriately challenged. Within FS through to Y6, all staff use a CPA (Concrete, Abstract, Pictorial). We encourage learners to ask as well as answer mathematical questions. Learners have opportunities to explain and share methods with peers. All learners are given opportunities to demonstrate/model, answer, explain, suggest and reason mathematically.

We do not follow one specific scheme for the teaching of Maths; we use a range of resources including White Rose, Maths No Problem, resource from St Helens Teaching School Alliance and other source resources.

All teachers and learning assistants should follow a whole school Calculation Policy which supports the 2014 curriculum and shows progression. This is clearly displayed in every classroom and is available for parents/carers to access on the school website. (See Appendix 1)

Our priority is to develop individual mastery of the expected learning outcomes for each year group and challenge learners' thinking as much as we can. Learners always have the opportunity to use a wide range of resources such as number lines, number squares, digit cards and small apparatus to support their learning. Learners are given opportunities to use ICT in mathematics lessons where it will enhance their learning, as in modelling ideas and methods and within reasoning lessons through trial and error.

All staff encourage learners to use and apply their mathematics in everyday situations, open-ended tasks, reasoning and problem solving 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 teaching of mathematics at Nutgrove regularly provides opportunities for:

- Whole class teaching
- Individual work
- Reasoning activities
- Group work/Paired work
- Guided/focussed intervention activities

Learners regularly engage in:

- The development and mastery of mental strategies, basic skills and routines
- Standards written methods
- Practical work
- Investigational work
- Problem-solving including reasoning
- Mathematical discussion and explanation
- Mathematical games

Mathematical games help learners to practise concepts, number facts and relationships between them. Games can encourage creative thinking and purposeful communications e.g. NRICH, TSA (Teaching School Alliance)

We recognise the importance of establishing a secure foundation in mental calculation and recall of number facts. We encourage learners to use correct notation and language at all times. Teachers are expected to use the mathematical vocabulary for their year group at all times in maths lessons and across the curriculum. Published resources are used to develop mathematical language wherever possible.

- Children in Y2-Y6 complete daily Maths Drill using a range of resources e.g. Maths Minutes, Maths Workout or speed tables (teacher discretion).

Display

We recognise the important role display has in the teaching and learning of Mathematics by having a variety of maths work displayed in the school. All classrooms have a maths learning wall featuring year group specific vocabulary, a copy of the latest class calculation policy, excellent examples of

learners' current work, informative classroom posters to support learners' learning such as times tables and number bonds. Displays should be fresh, relevant and inspiring. Maths vocabulary specific to the learning in class should be on display in classes.

Problem Solving

Lessons are structured to encourage independent work along with group discussion. Learners will tackle problems independently and then discuss their plan or solution either with a small a group of learners or to the whole class. In this way, ideas are shared and common ideas and strategies are identified. The learners are not only applying the mathematics they have been taught but are given the opportunity to learn new strategies.

Problems are taken from a variety of resources such as the NRICH web site, St Helens Teaching School Alliance and activities are available on the mathematics shared teacher drive. Advice is given on the appropriate year groups that the problems can be used.

Resources

All classes have a range of age-related resources such as multilink cubes, number lines, base ten, and clocks etc. for use within lessons. Additional to this there is a range of maths resources stored centrally within school for use by all classes as and when required.

Mathematics curriculum planning

Mathematics is a core subject in the National Curriculum, and we use the 2014 curriculum document for maths as the basis for implementing the statutory requirements of the programmes of study.

We do not follow one specific scheme for the teaching of Maths; we use a range of resources including White Rose, St Helens Teaching School Alliance and other source resources. We believe in a spiral curriculum with continual revision where progression is made through small logical steps. We plan in three phases (long-term, medium-term and short-term). The 2014 curriculum document for maths gives a detailed outline of what we teach in the long term. Teachers can choose to use include ad hoc lessons outside of the planned curriculum, focusing on areas not yet covered, to fully prepare pupils for assessments.

Our medium-term mathematics plans, give details of the main teaching objectives for each term and define what we teach. They ensure an appropriate balance and distribution of work across each term.

Our weekly plans list the specific learning objectives in a measurable way for all abilities for each lesson. Teachers can use the school planning document; alternatively, they can annotate plans from White Rose. We expect every class to have a daily maths lesson incorporating mental maths. In Y3-Y6 one lesson per week will be an extended arithmetic session wherein learners complete an arithmetic test followed by a more detailed discussion and evaluation of strategies and methods. Y2 also follow this method usually around Spring Term. The class teacher takes into account the differing needs and abilities of learners when preparing the weekly plan.

Senior leadership and the Maths Standards Manager are responsible for monitoring the standards of Mathematics in the school. (See Monitoring and Evaluation Policy)

Assessment and Recording

All teachers assess learners' work in mathematics in the short-term, medium-term and long-term. Short-term assessments are mainly informal and help us adjust our daily plans by picking up on any misconceptions from the learners, which are then addressed at the earliest convenience often within lessons, later during the same day or before the next lesson whenever possible, to ensure that learners do not 'stay stuck'. Teachers provide pupils with incisive feedback, in line with the school's assessment policy, about what pupils can do to improve their knowledge, understanding and skills. The pupils use this feedback effectively.

We assess against the objectives for each year group as set out in the 2014 National Curriculum document. We test learners formally towards the end of each term using a published end of term test such as CGP, past SAT papers and Hodder and Stoughton (PUMA), CGP, Twinkl and Testbase specific to their year group.

Teachers are always seeking out opportunities to assess the mathematical skills and knowledge against the expected objectives for their year group. If learners do not meet a specific objective they receive prompt intervention and further support and challenge to master those areas. Y1-Y6 have specific assessment opportunity time on a Friday morning.

Pupil progress and attainment data are shared with other key stakeholders such as Governors and the Local Authority to inform them of progress rates and standards in Mathematics throughout school.

(See Assessment Policy)

The Foundation Stage

We teach mathematics which includes number and shape and measure within our Foundation Stage classes. We relate the mathematical aspects of the learners' work to the objectives set out in the Early Learning Goals taken from the 2013 Foundation Stage curriculum document.

We give all Foundation Stage learners every opportunity to master their understanding of number, measurement, pattern, shape and space through varied activities that allow them to enjoy, explore, practise and talk confidently about mathematics. Focus is given to correct number formation and the FS teacher will ensure every effort is made to ensure all children can form the digits 1-9 correctly.

Contribution in mathematics to teaching in other curriculum areas

English

Mathematics contributes significantly to the teaching of English in our school by actively promoting the skills of reading, writing, speaking and listening. For example, we encourage learners to read and interpret problems to identify the mathematics involved. The learners explain and present their work to others during lessons. Younger learners enjoy stories and rhyme that rely on counting and sequencing. Learners may well encounter mathematical vocabulary, graphs and charts when using non-fiction texts.

ICT

ICT can directly enhance the teaching and learning objectives for particular lessons.

Science

Almost every scientific investigation or experiment is likely to require one or more of the mathematical skills of classifying, counting, measuring, calculating, estimating and recording in tables and graphs. In science learners will, for example, order numbers, including decimals, calculate simple means and percentages, use negative numbers when taking temperatures, decide whether it is more appropriate to use a line graph or bar chart, and plot, interpret and predict from graphs.

Art, Design and Technology

Measurements are often needed in art and 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 working out times and calculating cost; this may not be straightforward if only part of a packet of ingredients has been used.

History, Geography and RE

Learners 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 learners, historical ideas require an 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

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.

Teachers have the autonomy to cover maths objectives within their teaching of all of the above subjects and this will be indicated on medium-term plans for maths.

Personal, Social and Health Education (PSHE) and Citizenship

The work that learners do outside their normal lessons encourages independent study and helps them to become increasingly responsible for their own learning. The planned activities that learners do within the classroom encourage them to work together and respect each other's views.

Spiritual, Moral, Social and Cultural Development

The teaching of mathematics supports the social development of our learners through the way we expect them to work with each other in lessons. Learners are expected to show Christian values towards each other and of themselves in the way they tackle an activity and interact with their peers. When appropriate we group learners so that they work together, and we give them the chance to discuss their ideas and results.

Teaching Mathematics to Learners with Special Educational Needs.

We provide learning opportunities that challenge all abilities and are matched to the needs of learners of all abilities to help them all make at least expected progress and more where we can. 'Smart' Provision Plans provide more specific guidance to support learners in Mathematics.

(See SEN Policy)

Resources

All classes have plenty of resources specific to their year group and the needs of the learners in that class. Additional resources are centrally held outside the Y3/Y5 classrooms. (See Appendix 2). A range of software is available to support maths work (see Appendix 3) along with the ICT resources available on the Department of Education.

We use a variety of published materials to facilitate the teaching of mathematics but recognise the need for the teaching of maths to be '*scheme assisted not scheme driven*'. at present to support the delivery of the 2014 Curriculum school uses a combination of Write Rose, St Helens Teaching School Alliance, Hamilton Trust, Rising Stars and Focus Education, but a wide range of teacher books are also available. Materials are constantly updated as new and relevant items become available.

During break and lunchtimes, learners have access to maths games.

Homework

Learners in all classes are given mathematics homework once each week. 4 rule practice, times tables and number bonds, where appropriate. Parents will be informed of the times tables objectives for their child's year group and the year above if the child is proficient in their year group's times tables. Teachers can use a variety of resources to support the teaching of times tables e.g. speed tables, flashcards, Times Table Rock Stars etc. FS learners are given practical maths homework e.g. search for 3d shapes around your house and number formation homework to reinforce the learning taking place within lessons.

Impact

We expect the majority of pupils in each class to be able to work through their POS (programme of study) at relatively the same pace, however, we are aware that this is not always the case and so provide additional support and challenge, where appropriate, for both lower and higher achievers to ensure they are achieving in-line with their peers.

Learning assistants provide additional support and challenge for some learners; teachers ensure that work is appropriately matched to the needs of individual learners.

Responses to Learners' Work

We recognise the importance of responding to learners' work, whether orally or in writing. We seek to encourage learners by highlighting positive achievements. This could include praise for use of a viable method even if sometimes the end results were incorrect. Learners are encouraged to be reflective learners. Mathematical misconceptions identified in learners work are addressed as quickly as possible often within the lesson, or later on the same day; learners are given a quick revisit of the learning objective either working with the class teacher or Learning Assistant; whichever is appropriate. Teachers are encouraged to correct misconceptions quickly including incorrect number formation and the misspelling of key mathematical vocabulary. All learners' work is marked per the school's marking policy.

Monitoring and Review

The Mathematics Standards Manager supports and challenges colleagues in the teaching of Mathematics, keeping up to date about current developments in the subject, and providing a strategic lead and direction for the subject in the school.

This involves continually monitoring and evaluating the standards of maths and identifying areas for further development.

The headteacher allocates regular management time to them to further assist so that they can review samples of learners' work via book scrutinies and undertake lesson observations of Mathematics teaching across the school. The Link Governor takes a close interest in monitoring the impact of the provision of Mathematics teaching across the school.

The Maths governor is Eileen Smith.