

Maths Policy



For I know the plans I have for you, plans to prosper you and not to harm you,
plans to give you hope and a future.
Jeremiah 29:11

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Mission Statement

Nutgrove Methodist Primary School strives to provide a caring environment in which every individual can achieve his or her full potential, without limits.

This is encompassed by our Bible verse For I know the plans I have for you," declares the Lord, "plans to prosper you and not to harm you, plans to give you hope and a future. Jeremiah 29:11.

To achieve this, we wish to create a happy, secure and purposeful culture throughout the school, which is conducive to learning and high standards, and is based on our Christian values, love, hope and respect.

Our school's motto and vision is 'My Best, Always, Everywhere' which is interwoven within our curriculum intent and design.

Safeguarding Statement

At the Nutgrove Methodist Primary School we recognise our moral and statutory responsibility to safeguard and promote the welfare of all children.

We work to provide a safe and welcoming environment where children are respected and valued. We are alert to the signs of abuse and neglect and follow our procedures to ensure that children receive effective support, protection and justice.

The procedures contained in the Safeguarding Policy apply to all staff, volunteers and governors.

Vision

These 3 key components are underpinned by our school's Christian Values which permeate every aspect of Nutgrove life.

Love

We greet our children with a smile and welcome them with open arms into school as part of our Nutgrove family. Teachers greet pupils at the classroom door every day.

Respect

So that we maintain a positive environment which is conducive to learning for all pupils, we praise in public and restore in private. We use a restorative approach to overcome conflict and learn from our mistakes.

Hope

As a staff and wider school team, our hopes for children in our Nutgrove family are underpinned by a shared aspiration to recognise and celebrate each child's unique God-given talents and to drive them to fulfill their potential so that they flourish when they are ready for the World beyond Nutgrove.

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 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

At Nutgrove learning is propelled by our three curriculum drivers: global citizenship, diversity and culture. 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 begin 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 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 use the White Rose scheme for the basis of our teaching of Maths. Teachers are encouraged to use the scheme as a guide and as such they can choose to omit or add additional lessons to adapt to the needs of their class to compliment and further embed key learning. All lessons will include modelled examples to build and develop students' background knowledge within- their long-term memories, so that information that can

then be recalled and applied when attempting problems. Students can learn and remember more of what we teach them through using worked examples through backward fading. 'I do, we do, you do.'

We follow a whole school Calculation Policy which supports the National Curriculum and shows clear progression throughout each year group and across a range of skills. This 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, Total Maths (Tara Loughran maths consultant through Epworth Education Trust)

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 Y1-Y6 complete morning Maths Drill using a range of resources e.g. Arithmetic questions as part of a White Rose lesson, 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 and will feature year group specific vocabulary, methods of work, place value chart, sentence starters/prompts, unit of work title and may display examples of learners' current work. Displays should be fresh, relevant and inspiring.

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 follow the White Rose scheme for the teaching of Maths. 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 use plans from White Rose and annotate and adapt them to the needs of the individual learners in their class. We expect every class to have a daily maths lesson incorporating mental maths.

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 use Pixl across years 1-5 and past SAT papers in Y6. In EYFS we conduct a baseline assessment on entry and monitor progress against the Early Learning Goals.

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.

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

The mathematics area of learning and the Early Learning Goals at the end of the Foundation Stage have undergone significant change in the EYFS reforms. They have moved away from the heading of Numbers and Shape, Space and Measures with the new heading being Numbers and Numerical Patterns. The emphasis is now firmly placed on number and counting with a focus on numbers up to ten. Maths development for younger children grows through their play and exploration, active engagement, creative and critical thinking and interactions with adults. Whilst Shape, Space and Measures is no longer in the new curriculum as a heading it remains a central part of children's entitlement and experience in the curriculum.

In the Early Years, Maths is designed to create a solid understanding of numbers to 20, as well as shape, space, measure and pattern through play and real-life experiences, as well as formal lessons. The use of the White Rose Maths scheme, non - statutory documents such as Development Matters and Birth to 5, and our knowledge of the Early Years Profile ensures that our Maths curriculum is tailor made to give children the best possible start to their mathematical journey, and creates a strong foundation of learning to prepare them for Key Stage 1 and beyond.

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. Maths relates to Music by: Being able to spot patterns, time signatures link to fractions.

Skills used in Maths such as memorisations of key facts such as times tables are similar to skills used in Music – memorising notes.

Personal, Social and Health Education (PSHE) and PATHs

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. Assess, Plan, Do, Review provide more specific guidance to support learners in Mathematics.

(See SEND Policy)

Homework

Learners in all classes are given mathematics homework once each week via often Purple Mash. 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 also 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, 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.