

Saint Norbert's Catholic School

Mathematics Policy

Date Adopted: Autumn 2018

Date of Review: Autumn 2019



ST. NORBERT'S
CATHOLIC PRIMARY SCHOOL

Our Mission Statement

St. Norbert's strives to nurture and develop the whole child through a

Love of God
Love of one another
Love of life itself

Article 3 (Best interests of the child) - The best interests of children must be the primary concern in making decisions that may affect them. All adults should do what is best for children.

Article 28 (Right to education) - All children have the right to a good primary education, which should be free.

Article 29 (Goals of education) - Children's education should develop each child's personality, talents and abilities to the full.

Introduction

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

(National Curriculum 2014)

The aims of the 2014 National Curriculum are for our pupils to:

- Become fluent in the fundamentals of mathematics through varied and frequent practice with complexity increasing over time.
- Develop conceptual understanding and ability to recall and apply knowledge rapidly and accurately. Reason mathematically; follow a line of enquiry, conjecture relationships and generalisations.
- Develop an argument, justification and proof by using mathematical language.
- Problem solve by applying knowledge to a variety of routine and non-routine problems. Breaking down problems into simpler steps and persevering in answering.
- The National Curriculum sets out year-by-year programmes of study for key stages 1 and 2. This ensures continuity and progression in the teaching of mathematics.
- The EYFS Statutory Framework 2014 sets standards for the learning, development and care of children from birth to five years old and supports an integrated approach to early learning. This is supported by the 'Development matters' non statutory guidance.

The EYFS Framework in relation to mathematics aims for our pupils to:

- develop and improve their skills in counting understand and use numbers
- calculate simple addition and subtraction problems describe shapes, spaces, and measures

The purpose of mathematics in our school is to develop:

- positive attitudes towards the subject and awareness of the relevance of mathematics in the real world
- competence and confidence in using and applying mathematical knowledge, concepts and skills

- an ability to solve problems, to reason, to think logically and to work systematically and accurately
- initiative and motivation to work both independently and in cooperation with others
- confident communication of math's where pupils ask and answer questions, openly share work and
- learn from mistakes
- an ability to use and apply mathematics across the curriculum and in real life
- an understanding of mathematics through a process of enquiry and investigation

We aim to provide a stimulating and exciting learning environment that takes account of different learning styles and uses appropriate resources to maximise teaching & learning.

Breadth of study

Careful planning and preparation ensures that throughout the school children engage in:

- practical activities and games using a variety of resources
- problem solving to challenge thinking
- individual, paired, group and whole class learning and discussions
- purposeful practice where time is given to apply their learning
- open and closed tasks
- a range of methods of calculating e.g. mental, pencil & paper and using a calculator
- working with computers as a mathematical tool

Through our creative approach to teaching and learning we also seek to explore and utilise further opportunities to use and apply mathematics across all subject areas.

Teachers planning and organisation

Long term planning

The National Curriculum for Mathematics 2014, Development Matters and the Early Learning Goals (Number, Shape Space & Measure) provide the long term planning for mathematics taught in the school.

Medium term planning

Years 1-6 use the White Rose Math's Hub schemes of learning as their medium term planning documents.

These schemes provide teachers with exemplification for math's objectives and are broken down into fluency, reasoning and problem solving, key aims of the National Curriculum. They support a mastery approach to teaching and learning and have number at their heart. They ensure teachers stay in the required key stage and support the ideal of depth before breadth. They support pupils working together as a whole group and provide plenty of time to build reasoning and problem solving elements into the curriculum.

Short term planning

The above schemes of learning support daily lesson/flipchart planning. Lessons are planned using a common planning format and are monitored at intervals by the mathematics subject leader. EYFS planning is based on the medium term plans and delivered as appropriate to individual children with thought to where the children are now and what steps they need to take next.

All classes have a daily mathematics lesson where possible. In key stage one lessons are 45-60 minutes and in key stage two at least 60 minutes.

The Teacher of the EYFS ensure the children learn through a mixture of adult led activities and child initiated activities both inside and outside of the classroom. Mathematics is taught through an integrated approach.

Special educational needs & disabilities (SEND)

Daily mathematics lessons are inclusive to pupils with special educational needs and disabilities. Where required, children's IEP's incorporate suitable objectives from the National Curriculum for Mathematics or development Matters and teachers keep these in mind when planning work. These targets may be worked upon within the lesson as well as on a 1:1 basis outside the mathematics lesson. Math's focused intervention in school helps children with gaps in their learning and mathematical understanding. These are delivered by trained support staff and overseen by the SENCO and/or the class teacher.

Within the daily mathematics lesson teachers have a responsibility to not only provide differentiated activities to support children with SEND but also activities that provide sufficient challenge for children who are high achievers. It is the teachers' responsibility to ensure that all children are challenged at a level appropriate to their ability.

Equal Opportunities

Positive attitudes towards mathematics are encouraged, so that all children, regardless of race, gender, ability or special needs, including those for whom English is a second language, develop an enjoyment and confidence with mathematics. This policy is in line with the school's 'Racial Equality' policy.

The aim is to ensure that everyone makes progress and gains positively from lessons and to plan inclusive lessons. Lessons involving lots of visual, aural and kinesthetic elements will benefit all children including those for whom English is an additional language (EAL).

Differentiated questions are used in lessons to help children and planned support from Teaching Assistants and other adults.

Lessons

In all lessons, learning objectives and success criteria are clearly displayed and discussed. The emphasis in lessons is to make teaching interactive and lively, to engage all children encouraging them to talk about mathematics. Lessons involve elements of:

Instruction - giving information and structuring it well;

Demonstrating - showing, describing and modelling mathematics using appropriate resources and visual displays; Explaining and illustrating - giving accurate and well paced explanations; Questioning and discussing; Consolidating; Reflecting and evaluating responses - identifying mistakes and using them as positive teaching points; Summarising - reviewing mathematics that has been taught enabling children to focus on next steps

Pupils' Records of work

Children are taught a variety of methods for recording their work and are encouraged and helped to use the most appropriate and convenient. Children are encouraged to use mental strategies and their own jottings before resorting to more formal written methods. Children's own jottings to support their work is encouraged throughout all year groups.

Marking

Marking of children's work is essential to ensure they make further progress. Work is marked against success criteria, in line with the school marking policy, and includes next steps. Children are encouraged to self-assess their work and given time to read

teachers' comments and make corrections or improvements. Responses to marking are made as close to the work as possible, ideally at the start of the next lesson. Some pieces of work in mathematics can be marked by children themselves, exercises involving routine practice with support and guidance from the teacher - particularly in years 5 & 6.

Assessment

Assessment is an integral part of teaching and learning and is a continuous process.

Teachers make assessments of children daily through;
regular marking of work

- analysing errors and picking up on misconceptions
- asking questions and listening to answers
- facilitating and listening to discussions
- making observations

These ongoing assessments inform future planning and teaching. Lessons are adapted readily and short term planning evaluated in light of these assessments.

Medium term

Termly assessments are carried out across the school using the assessment materials for each year group provided by the White Rose Math's Hub in line with the schemes of learning. These materials used alongside judgements made from class work support teachers in making a steps assessment for each child which in line with the assessment policy they enter onto Primary Target Tracker.

Teachers in years 1-6 track the detailed progress of 3 children in mathematics against Target Tracker Statements. The statements cover the mathematics objectives for the year group. This process of careful tracking adds to helping teachers form an assessment for each child.

Pupil Progress meetings are timetabled each term for all classes. Progress of pupils is discussed and appropriate intervention considered and put in place where appropriate.

Long term

Y2 and Y6 complete the national tests (SATs) in May. Yrs.' 3, 4 and 5 complete optional SATs papers produced by Testbase 2015 which inform teacher summative judgements in the summer term.

Resources

Each class has a stock of core resources that are age appropriate. Additional mathematical equipment and resources are stored centrally in the resources room.

MyMaths

MyMaths, a fully interactive online mathematics learning tool for children is used by teachers to support mathematics learning both in class and at home. Children are set homework on MyMaths in line with the homework policy and are encouraged by school to access it regularly at home to support areas of mathematical learning.

Role of the Math's Subject Leader

- To lead in the development of math's throughout the school.
- To monitor the planning, teaching and learning of mathematics throughout the school. To help raise standards in math's.
- To provide teachers with support in the teaching of mathematics.
- To provide staff with CPD opportunities in relation to math's within the confines of the budget and the
- School Improvement Plan
- To monitor and maintain high quality resources.
- To keep up to date with new developments in the area of mathematics

Sam Morton - Math's Subject Leader

'Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. Pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems'

National Curriculum Framework, DfE 2014

Purpose of the Policy

The mathematics Policy has been written to meet the requirements of the National Curriculum 2014, for the teaching and learning of math's. This policy must be used in conjunction with St Norbert's Calculations Policy.

Aims of the Policy

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

At St Norbert's Primary School, we aim to:

- recognise and value the importance of nurturing, building and developing all aspects of Mathematics for our pupils from their arrival in school to their transition to secondary school and for a life beyond education
- ensure they are "secondary ready" developing key skills for life. This includes the development of key calculation skills across the curriculum.
- develop a positive attitude to math's as an interesting and attractive subject in which all children gain some success and pleasure;
- develop mathematical understanding through systematic direct teaching of appropriate learning objectives;
- encourage the effective use of math's as a tool in a wide range of activities within school and, subsequently, adult life;
- develop an ability and confidence in the children to express themselves fluently, to talk about the subject with assurance, using correct mathematical language and the ability to use reasoning skills to show a deeper understanding and knowledge of concepts.
- develop an appreciation of relationships within math's;
- develop ability to think clearly and logically with independence of thought and flexibility of mind;
- develop an appreciation of creative aspects of math's and awareness of its aesthetic appeal;
- develop mathematical skills and knowledge and quick recall of basic facts in line with National Curriculum recommendations
- to enable all pupils to develop a mastery of math's, enabling them to develop the knowledge and confidence to be successful mathematicians.
- continually raise the standards of achievement of the pupils in St Norbert's School.

The teaching of mathematics mastery at St Norbert's School is geared towards enabling each pupil to develop within their capabilities; not only the mathematics skills and understanding required for later life, but also an enthusiasm and fascination about math's itself.

The National Curriculum

The National Curriculum for Mathematics describes what must be taught in each Key Stage and within each year group. This ensures continuity and progression in the teaching of mathematics. We follow the 2014 National Curriculum Framework for math's and other guidance to enable quality learning and teaching to take place.

Mathematics in the Foundation Stage

Work undertaken within the Foundation Stage is guided by the requirements and recommendations set out in the QCA/DfE curriculum guidance and will work towards the Early Learning Goals aiming to meet the statements contained within the goals by the end of Reception year.

We give all the children ample opportunity to develop their understanding of mathematics. We aim to do this through varied activities that allow them to use, enjoy, explore, practice and talk confidently about mathematics.

In Reception the daily routine will include planned and spontaneous activities that include:

- a wealth of opportunities to develop and cultivate basic math's number sense
- experiences that allow understanding and application of math's concepts both indoors and outdoors.
- sharing and enjoying a range of rhymes and songs about math's
- focus activities that teach children basic math's and calculation skills.

Planning

Planning is undertaken at three levels:

Long term planning is based on the yearly teaching programmes set out in the National Curriculum Framework and monitored through the use of CfBT overview planning formats. The A3 sheets highlight key topics to be covered, skills to be developed and cross curricular links to be made to provide opportunities for using and applying.

The expectation is that teachers annotate their relevant year group copy and store in their planning folders.

Medium term planning is carried out and monitored as an ongoing process throughout the year. Teachers highlight National Curriculum overview sheets half-termly and select their main teaching objectives from the yearly teaching programme and Framework to ensure a balanced mathematics curriculum. Teachers monitor and record the objectives and content being covered on the math's coverage records as an ongoing record of what is being taught. This planning acts as a tool to inform future planning and identify any gaps in coverage. Planning is kept in teacher's files on teacher USB Drives.

At St Norbert's School we also recognise the need to revisit topics regularly to revise and consolidate skills and then extend them. Every objective in the yearly teaching programme is covered at least once by the end of the relevant Key Stage.

The National Curriculum 2014 allows flexibility in planning for coverage of objectives and are as follows:

- Year 1 and Year 2 objectives are to be met by the end of Key Stage 1.
- Year 3,4,5 and 6 objectives are to be met by the end of Key Stage 2.
- It is the expectation that objectives in Year 3 and year 4 are met by the end of Year 4 to ensure that by Year 6 much of the teaching and learning is consolidation of knowledge, skills and understanding.

Short term planning is carried out weekly. These plans include a main learning objective, success criteria, resources and steps to success to achieve mastery of math's. Short term planning is kept in teacher planning files and on teacher USB Drives

The Subject Leader will use planning to support with relevant math's monitoring tasks upon agreement with teaching staff.

Cross-curricular links

Mathematics is taught mainly as a separate subject but staff are encouraged to ensure that every effort is made to link math's with other areas of the curriculum. We try and identify the mathematical possibilities across the curriculum at the planning stage. We also draw children's attention to the links between math's and

other curricular work so children see that math's is not an isolated subject. St Norbert's follows a Creative Curriculum that provide pupils with opportunities to forge links between math's and other curriculum subjects.

In the Early Years Foundation Stage, these links are more evident because of the less formal timetable.

The Mastery of Math's approach to teaching and learning identifies the need to use and apply math's skills and knowledge across a range of learning opportunities and subjects.

The teaching of math's is also enhanced for each year group, once a week, through Outdoor Learning lessons where teachers adapt mathematical objectives to be taught through a range of outdoor learning activities and opportunities in the Outdoor Classroom.

Teaching methods and approaches

Lessons can be structured in two ways, either;

- With a mental and oral starter, main activity, a guided session and a plenary and/or mini plenaries or
- Through a Mastery approach of using small Steps to Success, mental arithmetic, mixed ability peer to peer support, self-marking, and with a repetitive practice, reason and review process, followed by independent activities. This approach allows for misconceptions to be addressed immediately.

The teaching of Mathematics at St. Norbert's provides opportunities for:

- Group work
- Paired work
- Mixed ability peer to peer support
- Whole class teaching
- Individual work
- Independent learning
- Outdoor learning
- Cross Curricular learning

Pupils engage in:

- The development of mental strategies
- Written methods
- Practical work
- Investigational work

- Problem- solving
- Mathematical discussion and reasoning
- Consolidation of basic skills and routines
- Use of creative technologies

At St Norbert's School we recognise the importance of establishing a secure foundation in mental calculation and recall of number facts before standard written methods are introduced. We plan for the appropriate vocabulary to be used in our teaching and children are expected to use it in their verbal reasoning and written explanations.

We endeavour to set work that is challenging, motivating and engaging, encouraging the pupils to talk about what they have been doing, while ensuring that the consolidation of skills, knowledge and understanding is integral to the mastery teaching and learning of math's.

Lessons

In Key Stage One lessons are held on a daily basis and last for approximately 45 minutes to 1 hour. The children are taught in mixed ability classes. When children start in Reception the organisation is more flexible building up to a 30-minute adult directed session in the Summer Term.

In Key Stage Two Mathematics lessons last approximately for 1 hour approximately. The children are taught in mixed ability classes.

Pupils in both key stages, who are not secure in their basic math's skills and knowledge, or making less than good progress with their math's, will be given intervention and booster work to ensure accelerated progression can be made.

Mathematics on a daily basis

With the exception of a specific off-timetable event (i.e., Enrichment weeks or BLP Day's), there must be a daily Mathematics lesson for the age appropriate recommended time. If the class is out of school for half a day, then Mathematic skills must be taught and applied in a cross curricular context through other areas of learning. The only exceptions for not having a daily Mathematics lesson would be;

- A specific themed school event (i.e. Culture week)
- A whole day school trip out of school

- A whole day in school event (i.e. World Book Day)
- Whilst individual targets are being addressed

Where a lesson does not take place an explanation should be written in the book along with the date (this can be typed up or written in by children). The Mathematics lesson must include some form of teacher modelling.

This could include:

- Teacher modelling methods of calculation choices within a setting description
- Children working on whiteboards individually/ in pairs to investigate a direct or open ended question

All daily Mathematics lessons should provide completed embedded opportunities for AFL for both the teacher and children. This may be in the form of self-assessment/peer assessment against the success criteria or success against set targets. (How this is facilitated is down to individual teachers, by taking into consideration the aptitude and age of the learner.)

Mathematics on a weekly basis

Each week lesson plans using the Mathematics planning format should be in teacher planning folder so that they can be used by any adult working with the class. This allows teachers the freedom and flexibility to alter or change plans as they teach throughout the week in response to good quality AfL practice.

Each plan should consider:

- Learning objectives/intentions
- Success criteria - by KS2 this can also be generated by the children
- Steps to Success to achieve learning outcomes
- Opportunities for practice, reasoning and review
- Opportunities to use and apply skills and knowledge
- Opportunities for Independent activities
- Role of the other adult (including during main teaching)

Assessment and Record Keeping

At St. Norbert's we are continually assessing our pupils and recording their progress. We see assessment as an integral part of the teaching process and endeavor to make

our assessment purposeful, allowing us to match the correct level of work to the needs of the pupils, thus benefiting the pupils and ensuring progress. Assessment is carried out on three levels.

Short-term assessments are an informal part of every lesson and are closely matched to the teaching objectives. These are for the teacher's and pupil's immediate attention and action; pertinent comments about progress can be recorded on the short term planning sheets and or pieces of work. Additional adults in class working with groups record attainment and progress on a monitoring sheet.

Medium term assessments are carried out every term. The purpose of these assessments is to review and record the progress the pupils have made in relation to the key objectives. Children's progress towards the key objectives is recorded on class records in the teacher's assessment folders.

In Year 2 and Year 6 teachers complete half-termly progress tests and use the results of these to identify gaps in learning and misconceptions that need to be addressed.

Termly Pupil progress data is also used to assess and identify pupils who are not making expected progress or at ARE (Age related expectations).

Long term assessments are carried out towards the end of the school year when pupils' attainment is measured against school and national targets. This is done by drawing on class records of Key Objectives and any supplementary notes that have been made and where applicable QCA tests.

There should be evidence in books of new targets being provided for children when the targets set have been met, along with assessment grids in the Pupil assessment folders being updated and used to inform planning.

Assessing Calculation - Stages

The calculation Policy assesses pupil's knowledge and skills according to the age stage expectations as set out in the National Curriculum 2014. Pupils are assessed according to the stage that they are currently working at and not their age. Pupils will only be moved to the next stage when they conceptually understand their learning and have mastered the skills and knowledge and can apply this in a variety of contexts. This assessment is ongoing and pupils moved to the next stage when they are 'Stage' ready.

Reporting

All parents receive an annual written report on which there is a summary of their child's effort and progress in mathematics over the year.

At the end of Key Stage 1 and Key Stage 2 each pupil's level of achievement against national standards is included as part of their annual written report and their current attainment levels are shared at Parent's Evening.

Cross Curricular Links

Mathematics is connected and taught through all subjects such as English, Science, History, ICT, DT, Art, Geography and Topic where using and applying the mathematical skills and knowledge they have acquired is demonstrated with fluency and efficiency.

Display

We recognise the important role display has in the teaching and learning of mathematics by having math's work displayed in the school. Every class has a mathematics board, where possible in the main teaching area, which has interactive resources (relevant to the work the children are doing), number grids, vocabulary and other display materials that provide a visual support for the children's mental processes. Teachers are also encouraged to display good quality math's work relating to the current learning or module. All classes are encouraged to have an interactive mathematics challenge area that is changed according to the mathematical objectives being taught.

Resources

Resources for the delivery of the math's curriculum are stored both centrally and in classrooms. Everyday basic equipment is kept in classrooms. Additional equipment, outdoor boxes and topic-specific items are stored centrally.

Each class, including SEN and EAL, have a box of basic number resources stored in the classroom, to be used to support the teaching and learning of math's. These are also a main resource for the delivery of interventions.

St Norbert's School uses a variety of methods, strategies, resources, ICT and visual aids to support the teaching and learning of mathematics. Materials are frequently updated, as new and relevant items become available. The Math's Subject Leader orders new resources after completing audits and having consultation with the staff.

Equal Opportunities

As a staff we endeavor to maintain an awareness of, and to provide for equal opportunities for all our pupils in mathematics. We aim to take into account cultural background, gender and Special Needs, both in our teaching attitudes and in the published materials we use with our pupils.

Children with Special Educational Needs

Wherever possible we aim to fully include SEN pupils in the daily mathematics lesson so that they 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 Inclusion manager, draw up individual targets for the SEN Support target books for a child. If a child's needs are particularly severe they will work on an individualised programme written in consultation with the appropriate staff.

When planning teachers will try to address the child's needs through simplified or modified tasks, visual and practical resources or the use of support staff.

Homework

Mathematics homework will be provided through a programme of regular homework tasks which will be set termly on a homework termly planner sheet. These will be sent out on the first Friday of the term alongside the newsletter and topic webs.

Any math's homework given should consolidate the skills and knowledge taught that week or the previous week.

The amount of homework set is based on the DfE recommended time allocation for homework and allocated time for math's homework is within these guidelines. (These times are approximate and are a guide only)

Years R, 1 and 2 1hour/week

Years 3 and 4 1.5 hours/week

Years 5 and 6 2 hours/week

It is expected that Times Tables are an ongoing homework task.

Special Educational Needs and Maths Homework

Setting the right type and amount of homework for children with special educational needs will need careful consideration by the class teacher and coordination with both the Inclusion Manager and parents. SEND children may benefit from differentiated tasks separate from the homework set for other children in the class but it is important that they should do as much in common with other children as possible.

The Subject Leader

The Math's Subject Leader's role involves:

- modelling good practice and updating the school policy when necessary
- being responsible for the upgrading and ordering of resources and arranging for their storage
- keeping informed about developments and new initiatives to support the teaching of Math's and ensure staff are informed
- auditing needs and organising staff training; training staff in teaching and learning of literacy;
- analysis of Mathematic assessments and pupil data throughout the school and ensuring targets are met.
- Scrutiny of books and lesson observations with constructive feedback; monitoring learning environments
- supporting teachers in planning and using resources;
- facilitating parent workshops

Signed _____

(Headteacher)

Signed _____

(for and on behalf of the Governing Board)

Date _____