St Bede's Catholic Primary School

Maths Policy

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ST BEDE'S
CATHOLIC PRIMARY SCHOOL

NICHOLAS POSTGATE
Catholic Academy Trust

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ST BEDE'S
CATHOLIC PRIMARY SCHOOL

Our Mission Statement

"In St Bede's we welcome everyone, grow and learn together as God's family, and use our gifts to serve with love."

Our Vision Statement

We are guided by our Mission Statement and we aim to:

- develop and care for the **whole child** through our teaching and sharing of the Catholic faith.
- show our love of God in the way we care and value each other and ourselves.
- aspire and equip children with those skills necessary to become contributing members of society and responsible adults.
- recognise and encourage all pupils' individual gifts and talents.
- provide an excellent quality of education striving to achieve the very highest standards for all pupils and, at the same time, develop lively critical minds.
- develop each pupil's appreciation of education as a lifelong and enjoyable process.
- work in partnership with the Parish and families, local schools and community groups recognising that only by working together can the school make its contribution towards the development of committed Christians and active members of the Church.

Our Values

WELCOME - *Welcome everyone into our school family through our kind words and caring actions.*

LOVE *- Let the love of God shine in everything we do.*

INSPIRE - *Inspire each other to achieve our very best.*

RESPECT - *Respect each unique member of our family.*

PATIENCE *- Show patience and tolerance towards each other.*

COMMUNITY *- Work together to serve our community with love.*

Intent: What are we trying to achieve in our Curriculum?

At St Bede's our intent for mathematics is to ensure that all children become mathematicians. This is through the teaching of a rich, balanced and progressive curriculum using Maths to reason, problem solve and develop fluent conceptual understanding in each area. As stated in the National Curriculum, we aim for all children to be fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately. We aim for all children to be able to reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language. Also, we aim for all children to be able to solve problems 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.

Implementation: How is our curriculum delivered?

At St Bede's, maths is taught on a daily basis. As a school we have several materials to refer to for short-term planning including Abacus, NRICH, White Rose Maths and NCETM Teaching for Mastery – these are used across KS1 and KS2 allowing children to be exposed to a variety of different types of learning and problems. Teachers also implement the schools agreed calculations policy for progression in written and mental calculations. Formative assessment is incredibly important at St Bede's where we focus on challenge questions, analysis of learning and extension work. There is coherent progression seen in planning within each unit and activities in EYFS develop knowledge and skills of key learning.

Mathematical vocabulary is explicitly written within each year group's weekly planning – this is discussed with children who are encouraged to use it independently. Children are given opportunity to reason and solve problems regularly; learning is varied and allows for deep and secure understanding. Parents are informed of and encouraged to be involved in our school mathematics implementation through weekly and Curriculum newsletters, homework, parent's evenings and yearly reports. Teachers are also all available for parents to speak to both before and after school.

Teachers develop fluency through practicing key skills, repeating, reinforcing and revising which is all built in to formal planning across school. Children are given time to practice and perfect their calculation strategies including giving pupils opportunity to make appropriate decisions when estimating, calculating and evaluating the effectiveness of their chosen methods. Feedback including our whole school 'next steps' system is designed to ensure pupils are well informed and making visible progress.

Discussion is essential to our learning and time is planned into lessons for this, task types are varied to suit different pupils and their learning preferences whilst reasoning in writing remains one of our key focuses. Investigative tasks are designed to allow pupils to follow lines of enquiry and develop their own ideas, justifying and proving their answers. Children work both collaboratively and independently solving problems, which require them to persevere and develop resilience.

Impact

The impact of our mathematics curriculum is that children understand the relevance of what they are learning in relation to real world concepts. We have fostered an environment where Maths is fun and it is OK to be 'wrong' because the journey to finding an answer is most important. Our children have a growth mindset and they make measurable progression against their own targets. Our maths books are packed with a range of activities showing evidence of fluency, reasoning and problem solving. Our feedback and interventions are supporting children to strive to be the best mathematicians they can be ensuring a greater proportion of children are on track.

Our school standards are high, we moderate our books internally every term and carry out lesson observations throughout the year. This is to ensure that progress is being made in year groups and across phases. It allows us as a school to identify strengths and areas for development in the subject

and ensure that children are deepening their knowledge and understanding and building on skills which have been taught in previous years.

Mathematical National Curriculum 2014

"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."

Introduction

Mathematics equips pupils with a uniquely powerful set of tools to understand and change the world. These tools include logical reasoning, problem solving and the ability think in abstract ways.

Mathematics is important in everyday life. It is integral to all aspects of life and with this in mind we endeavour to ensure that children develop a healthy and enthusiastic attitude towards mathematics that will stay with them.

The National Curriculum Order for Mathematics describes what must be taught in each Key Stage. St Bede's follows the Primary Mathematics Framework which provides detailed guidance for the implementation of the orders and ensures continuity and progression in the teaching of mathematics. This revised policy takes into account the new National Curriculum (2014)

Rationale

St Bede's School aims, values and philosophy and mission are the bed-rock from which all our ethos, planning and curriculum development, delivery and provision take its shape. They determine the quality of life in school. The aims are uniquely tailored to meet the needs of the invested parties at St Bede's and reflect the ethos stated in our Mission Statement.

This policy is the formal statement of intent for Mathematics. It reflects the essential part that Mathematics plays in the education of our pupils. It is important that a positive attitude towards Mathematics is encouraged amongst all of our pupils in order to foster self-confidence and a sense of achievement. The policy facilitates how we, as a school, meet the legal requirements of Education Acts and NC requirements.

Principles

The principles for Mathematics are:

- Policy and provision are evaluated and reviewed regularly
- Resources of time, people and equipment are planned, budgeted for and detailed when appropriate in the SIP
- The governing body discharge their statutory responsibility with regard to Mathematics
- Cross curricular links will be identified where appropriate
- Planning of mathematics in accordance with the National Curriculum 2014
- And ensure continuity and progression across all year groups and key stages.

Aims

We aim to deliver lively, enquiring minds encouraging pupils to become self-motivated, confident and capable in order to solve problems that will become an integral part of their future. The National Curriculum for mathematics aims to ensure that all pupils:

- Become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils have conceptual understanding and are able to recall and apply their knowledge rapidly and accurately to problems.
- **Reason** mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language.
- Can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simple steps and persevering in seeking solutions.
- To be set appropriate learning challenges
- To be taught well and be given the opportunity to learn in ways that maximise the chances of success
- To have adults working with them to tackle the specific barriers to progress that they face.

Our pupils should:

- 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, multiplication, doubles and halves
- Use what they know by heart to figure out numbers mentally
- Calculate the accuracy and efficiency, both mentally and in writing, drawing on a range of calculation strategies.
- Make sense of number problems and recognise the operation needed to solve them
- Explain their methods
- Make judgements whether answers are reasonable
- Suggest suitable units for measuring
- Explain and make predictions in graphs, diagrams, charts and tables
- Develop spatial awareness and an understanding of the properties of 2D and 3D shapes

Provision

Pupils are provided with a variety of opportunities to develop and extend their mathematical skills in and across each phase of education

Foundation Stage

The programme of study for the Foundation Stage is set out in the EYFS Framework. Mathematics involves providing children with opportunities to develop and improve their skills in counting, understanding and using numbers, calculating simple addition and subtraction problems; and to describe shape, space and measures.

Key Stage 1 and 2

The programmes of study for mathematics are set out year by year for Key Stages 1 and 2 in the National Curriculum (2014). The programmes of study are organised in distinct sequence and structured into separate domains. Pupils should make connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Key Stage 1

The principal focus of mathematics teaching in Key Stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources (e.g. concrete objects and measuring tools).

At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of

measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.

By the end of Year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency.

Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at Key Stage 1.

Lower Key Stage 2

The principal focus of mathematics teaching in lower Key Stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.

At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number.

By the end of Year 4, pupils should have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work.

Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

Upper Key Stage 2

The principal focus of mathematics teaching in upper Key Stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio.

At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them.

By the end of Year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages. Pupils should read, spell and pronounce mathematical vocabulary correctly.

Cross curricular

Throughout the whole curriculum, opportunities to extend and promote Mathematics should be sought. Nevertheless, the prime focus should be on ensuring mathematical progress delivered discretely or otherwise.

Calculation Policy (See policy)

Children will use mental methods as their first port of call when appropriate, but for calculations that they cannot do in their heads, they will need to use an efficient written method accurately and with confidence.

We endeavour at all times to set work that is challenging, motivating and encourages the pupils to talk about what they have been doing.

Assessment

Assessment is regarded as an integral part of teaching and learning and is a continuous process. In our school we are continually recording pupils' progress by using Formative Assessments after a unit of work. Non-negotiables, success criteria and mastery objectives will be evident on the formative assessments to inform pupils of their progress and next steps learning. Information for assessment will be gathered through talking to children, observing work and marking their work. Teachers will use assessments to inform future planning.

The end of term assessments by teachers will be made against a background of the National Curriculum Level Descriptions and the knowledge and understanding assessments made throughout the year.

Each teacher should keep individual records of attainment, and this information should be passed on as the child progresses through the school.

To ensure that pupils are making the optimum progress throughout the academic year, their Maths achievement with end of year expectations will be monitored continually on a Tracking Grid.

The assessment procedures within our school encompass:

- Making ongoing assessments and responding appropriately to pupils during 'day-to-day' teaching.
- Using knowledge of pupils drawn from ongoing pupil tracking records and from the prior learning and lesson evaluations from planning;
- Adjusting planning and teaching in response to pupils' performance;
- Use of information gained from formative assessments. Analysis is undertaken at both a quantitative and qualitative level. Information gained is used to set focused curricular targets (what to teach) and also to determine which strategies or methods are particularly effective in respect of specific areas of mathematics (the how and why).

Marking

In line with the school marking policy all work will be marked. We will achieve this using a variety of strategies including self-marking, peer marking, discussion in groups, and marking for a purpose.

Role of subject leader

The Mathematics leader is responsible for coordinating Mathematics throughout the school

- Ensure continuity and progression in planning
- Provide staff with guidance in planning
- Advising on INSET where appropriate
- Supporting implementation and assessment of Mathematics throughout the school
- Maintaining of resources required for the teaching of Mathematics
- Analysing data to identify strengths and areas for development

Role of Class Teacher

- To ensure progression of Mathematical skills with regard to the National Curriculum for Maths 2014.
- Develop skills knowledge and understanding of Mathematics
- Identify own training needs
- To keep ongoing records
- To plan as directed by Mathematics leader liasing with year group partners where appropriate
- To inform parents of pupils' progress achievements and attainment

Monitoring and Review

Monitoring the standards of children's work and the quality of teaching in mathematics is carried out termly. The work of the Maths subject leader involves supporting colleagues in the teaching of Maths, being informed about current developments in the subject and providing a strategic lead and direction for the subject in the school. The Maths subject leader has leadership and management time in order to enable her to review samples of the children's work and undertake lesson observations of Maths teaching across the school.

Display

We recognise the important role display has in the teaching and learning of mathematics by having maths work displayed in the school. Every class has a 'Maths Challenge Working Wall' which is a visual aid to support children with their work.

Technology

We have a variety of computer programs for Maths work, including Times Tables Rockstars. The school also has programmable toys such as Bee-bots. There are a range of Maths programmes available on the interactive whiteboard, IPads and individual computers designed to reinforce and extend the children's learning. Teachers share resources and websites.

Spoken language

The national curriculum for mathematics reflects the importance of spoken language in pupils' development across the whole curriculum – cognitively, socially and linguistically. The quality and variety of language that pupils hear and speak are key factors in developing their mathematical vocabulary and presenting a mathematical justification, argument or proof. They must be assisted in making their thinking clear to themselves as well as others and teachers should ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions. (National Curriculum 2014)

Special Educational Needs

In line with the school policy on Special Educational Needs, the Inclusion Lead, mathematics co-ordinator and the class teacher will be involved in ensuring that pupils will have work planned to meet their needs. Classroom assistants will also provide additional support. Those pupils with significant needs in mathematics should have specific mathematical targets set to help achieve their end of year expectation.

Spiritual, moral, social and cultural development

The teaching of mathematics supports the social development of our children through the way we expect them to work with each other in lessons. We often group children so that they can work together and we give them a chance to discuss their ideas and results. The study of famous mathematicians around the world contributes to the cultural development of our children. Mathematics contributes to children's spiritual development. Children can find shapes and pattern in nature. They can see the order, logic and pattern that numbers offer.

Equal opportunities

The mathematics curriculum should be delivered in a flexible way, which gives equal access to all children regardless of gender, race or ability.

Every Child Matters

Maths allows every child apply their knowledge in practical ways to solve number problems in their everyday lives.

Parental involvement

We encourage parents to be involved by

- Informing parents via termly newsletters
- Sending home end of year report
- Holding parental consultation evenings /workshops focusing on areas of Mathematics when necessary
- Asking parents to support homework.