



**St. Bernadette's Catholic Primary Voluntary Academy
Mathematics Policy**

September 2022

1. Overview

In accordance with the academy's philosophy, we seek to inspire all our pupils with a positive attitude towards mathematics. Mathematics is a tool which helps children to make sense of the world by developing their ability to calculate, analyse, reason, solve problems and communicate ideas. It enables them to understand and appreciate relationships and patterns in number, shape and space. Mathematical activities provide opportunities for intellectual challenge, aesthetic pleasure and creativity. Within the structure of our mathematics teaching, we aim to enable our pupils to gain enjoyment from challenges and to develop a keen work ethic. We hope to enable our pupils to be confident and competent users of mathematics in the academy and in their everyday lives. Throughout the academy, pupils are provided with cross-curricular opportunities to develop their mathematical skills. Mathematics is around us in the world everyday and, with this in mind, we aspire to set our pupils on the path to life-long learning through the continual development of mathematical skills.

“Mathematics is a creative and highly interconnected 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.” (The new national curriculum in England framework document December 2014)

2. Main Educational Aims and Intent

We endorse the statements in the National Curriculum 2014. St. Bernadette's mathematics curriculum aims to ensure that through careful assessment, planning and preparation, all children are well prepared for the next stage of their education; as well as their futures post-16. We want to ensure our teaching of mathematics is consistent across the academy so teachers, teaching staff and pupils 'talk maths' confidently and

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harmoniously across the academy. Our ambition is that at least 80% of pupils achieve the required standard at both the end of KS1 and KS2 as well as in the Year 4 Multiplication tables check.

To achieve this standard we aim to develop:

- Fluency in the fundamentals of mathematics, including through varied and frequent practice over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately in various contexts.
- Reasoning by following lines of enquiry; applying logical thinking in various contexts; conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language.
- Problem solving by helping children apply their mathematics to a variety of problems with increasing sophistication, this can include breaking down problems into a series of simpler steps, understanding the process of trial and error as well as persevering with seeking solutions.
- A positive attitude to Maths so that it is regarded as an interesting and exciting subject in which all children can succeed and find enjoyment.
- The ability to use and apply Mathematics in other areas of the curriculum and in everyday life; both now and in the future.
- Initiative and resilience by working on challenges both independently and cooperatively with others (as collaboration and communication are crucial life skills).

Our aims and connected provision

Mathematics is an interconnected subject in which pupils need to be able to move fluently between different representations of mathematical ideas. We build on this philosophy with our White Rose Maths scheme which all teachers follow the coverage for in relevant year groups. This scheme is used as a foundation alongside our own devised structure of maths lessons for all teachers to help work towards, and go on to achieve, our mathematical aims as a school.

In mathematics at St Bernadette's, we aim for all pupils to become motivated and independent mathematicians that use fluency and resilience to reason and problem solve in various contexts. Our no limitations structure to maths lessons means children of all abilities have that opportunity to strive for excellence in each and every lesson. This is achieved through our role as educators, where we think critically and reflectively about how to progressively structure our maths tasks for each taught objective. Predominantly taken from the White Rose Maths scheme, our educators synthesise tasks into a progressive order that helps our pupils advance their fluency, reasoning and problem solving skills throughout the lesson. At St Bernadette's, we are aware that learning is fluid; both teachers and pupils are given flexibility over the starting points for each child within a lesson. The expectation is that the majority of pupils will move through tasks at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness. Pupils who grasp concepts rapidly are challenged through being offered rich and sophisticated problems presented in higher tasks to help them

delve deeper into each objective. Those who are not sufficiently fluent consolidate their understanding, with the lower pitched tasks before moving on.

Ways in which we support this include

- Direct instructional teaching and modelling.
- Interactive oral and mental work involving the whole class or set, often using an interactive whiteboard, individual whiteboards and supporting resources where necessary.
- Practical activities using counting and measuring equipment, shapes and money.
- Data collection, sorting, constructing and interrogating graphs and tables.
- Practising different methods of calculation, including practical, mental, pencil and paper and calculator methods.
- Using Times Tables Rockstars to complete times tables practise at least 3 times a week.
- Problem solving activities and investigations (both open ended and closed).
- Playing mathematical games and solving puzzles.
- Using interactive whiteboards, computer programs, websites and other ICT resources to reinforce and enrich learning.
- Working in different settings, individually, in pairs, small groups or as a whole class when appropriate.
- Progressively structured tasks building from fluency to further challenges which take account of different abilities within classes.
- Applying Mathematics in different areas of the Curriculum to reinforce learning and to provide a relevant context for using the knowledge and skills which have been acquired.
- Using a wide range of practical equipment to support conceptual development including: pictorial representation (Numicon; Base Ten; Counting Sticks; Cuisenaire Rods; number lines; one hundred squares; and more).
- Development of the knowledge, skills and resilience needed to achieve their greatest attainment in end of key stage tests.
- Weekly testing of times tables and arithmetic.
- Half termly discrete reasoning lessons.
- ‘Flashback 4’ lesson starters at the start of lessons to aid retention of previously learnt objectives (twice a week minimum).

3. Approaches to Teaching

Curriculum Organisation

The children have a daily mathematics lesson where they are taught knowledge, skills and understanding as set out in the National Curriculum.

The children are generally taught in their classes and within these children are grouped in ways most beneficial to their immediate learning needs. Grouping is fluid and changes with the needs of the child. The children have been set into their classes based on ability.

Early Years

Within Early Years, children follow the White Rose Maths overview from the scheme which provides our educators with guidance that covers the Early Years Framework objectives. This is taught through adult-directed lessons alongside continuous and enhanced provision. The Early Years White Rose scheme also includes 'deeper learning' question ideas which are used to help those children working beyond the early learning goals; children would be extended during their continuous provision if required. This learning is also accompanied by 'numberblocks' (which is fed into their long term overview) to help support children's concept of number and development of mathematical vocabulary.

Nursery have two x20 minute sessions a week alongside further teacher guidance and cross-curricular opportunities in other areas of learning.

EYFS have three x30 minute sessions which are structured and teacher lead followed by whole-class group work and sometimes independent activity sessions.

Key Stage One and Key Stage Two

Environment

Within the academy, we see the pupils' learning environment as an opportunity to inspire and engage the pupils in different ways. The learning environment is used to support the pupils within their mathematics lessons. Mathematics display walls will often include work and vocabulary linked to the current lessons and that of prior learning. The pupils' work and knowledge is celebrated on these displays. Within maths lessons, practical equipment is displayed and utilised to help children support their own understanding. Many classes display information linking to the current focus times table and the hard work that is being completed on TTRockstars.

Mathematics is celebrated and displayed throughout the academy, including a progression wall in the main hall. Further displays on mathematical vocabulary, symbols and conversions also aid learning.

Planning

- Weekly timetabled lessons in mathematics include: a daily mathematics lesson; rote learning of number facts and times tables; guided maths; collaborative working opportunities; reasoning and problem solving; mathematics in context of real life situations.
- Long term plans are accessed from our scheme of White Rose Maths (online).
- The academy's agreed format for medium term planning for mathematics is followed by all teachers to ensure continuity and progression. This is in line with the coverage of our White Rose Maths scheme.
- Short term planning for mathematics is undertaken by all class teachers, using the agreed format. Essential elements for all short term mathematics planning are: objective, progression of tasks and assessment incorporating the success criteria/learning outcome.
- Success criteria are specific. Teachers assess against the objectives. Marking is linked to the success criteria and in line with our whole school marking policy.

- Mathematics planning is monitored by the Mathematics Leader and members of the Senior Leadership Team.
- Cross-curricular links are used wherever possible in our termly topics.
- ICT and interactive resources are used where they will enhance learning.

Homework

- Homework provides children with opportunities to practise and consolidate mathematics skills and knowledge from current objectives, to develop and extend their strategies, and prepare them for future learning. Homework is sent out across the academy in mathematics as follows:
 - KS1 -one piece per week
 - LKS2 - one piece per week as well as times tables weekly practise
 - UKS2 - two pieces per week as well as times table weekly practise
- The academy has purchased CGP materials for mathematics work in KS2 which are often used for homework, along with other supporting resources the teacher feels fits appropriately for weekly objectives.
- Depending on the task, not all homework requires written outcomes (for example, key stage 1 might set a more practical task for homework).
- Homework should relate to the work being undertaken in class that week or previous week. Opportunities should also be created to provide feedback on homework to enable misconceptions to be addressed.
- All children have Times Tables Rockstars logins so they can access this programme at home as further practise.

Inclusion

The academy aims to make all pupils feel included. We recognise the entitlement of all pupils to a balanced and broad curriculum. All mathematics planning and teaching should take scaffolding into account, to ensure appropriate pupil access to learning and to maximise their progress. Pupils are taught within their classes and within these are grouped according to their needs at that moment in time. The class teacher's role is crucial in the provision of high quality teaching and learning in mathematics and lessons are personalised according to the children in that class and their requirements.

All mathematics sessions should take into account the particular requirements for children on the SEND register, as outlined in their Running Records or EHCPs and in accordance with the academy SEND Policy document. Any additional support or resources will be put in place where appropriate.

Those pupils entitled to pupil premium are supported within lessons and carefully monitored in order to ensure sustained progress is made. Some are then identified and given additional mathematics support and this is effectively monitored.

Pupils with EAL are given additional support in all aspects of mathematics, this could be through additional scaffolding or provision of challenges. We seek support and guidance from outside agencies to help ensure we tailor the learning to meet the needs of all individual pupils.

Using our formative and summative assessment tracking, we identify our Gifted and Talented pupils. These children have the opportunity to reach mastery skills (in each lesson's progressive tasks) that challenge them to think in different ways to develop and improve their reasoning and problem solving skills.

The Equal Opportunities Policy document should be consulted to ensure balanced and fair access to the mathematics curriculum for all groups.

Opportunities via the National Framework should be taken to encourage positive attitudes towards our multi-cultural and multi-ethnic society.

SEND provision in Mathematics:

- In ensuring that all children have access to their full mathematics entitlement, children with SEND are included in all aspects of the mathematics lesson through differentiated work and IEPs and, when appropriate, extra adult support.
- Within the academy we have a variety of programmes in place (*partly funded by pupil premium money*) to provide extra support for pupils, including:-
 - Y5 Mathematics Tuition (small group)
 - 30 minute Numicon sessions for Y2 pupils (small group)
 - Mathematics Tuition for selected Y6 pupils (small group)

EAL provision in Mathematics:

- For children who have English as an additional language we seek support and help from the relevant outside agencies. On entering the academy pupils are supported by EALIP. In class individual programmes are tailored to the child's needs.

Resources

The academy recognises that the most valuable classroom resource is the class teacher. Children become fluent in mathematics when they have lots of 'hands on' experiences. Therefore, children and staff draw on a wide range of practical resources in order to develop the conceptual understanding of maths; often supporting earlier lesson tasks and inputs. This then helps children move smoothly to more abstract representations and recorded methods. Good use of resources also helps make learning more interesting. These resources include:-

- White Rose Maths varied questions from the scheme.
- White Rose Maths supporting practical resources.
- Rising Stars Maths books including Problem Solving and Teaching for Mastery
- Rising Stars Test materials
- HeadStart books including arithmetic, mastering the curriculum and reasoning, problem solving and investigating.
- CGP pupil books (mainly used for homework).
- Times Tables Rockstars.

The work of other adults, including TAs, who work in a range of support programmes should be carefully planned by the teacher, in consultation with those adults.

- As defined in the National Curriculum, every class should have access to a range of mathematics equipment (pictorial and concrete): to support mathematics work, to aid independent learning and to develop children's positive attitude towards mathematics. A selection of Maths apparatus in each classroom and further equipment stored in the hall is used including; Numicon, Base Ten, Counting Sticks, Cuisenaire Rods, number lines, one hundred squares, place value counters and more.
- A range of software is installed on all Interactive Whiteboards, computers and Ipads and Teachers use a variety of web based and interactive resources.

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- Calculators should be used throughout the academy to promote play, exploration and fun with number. They may also be used at the teacher's discretion for children to check their own work.

Mathematics resource areas are established, and will be updated annually to support classroom Mathematics work. Resources should always be returned to the point of loan after use.

Training (CPD)

All staff are encouraged to take full advantage of mathematics training opportunities, to develop their confidence and update their expertise, through academy and LA-based INSET. Regular staff questionnaires and audits of subject knowledge will be conducted to inform training decisions to help the academy achieve their intent for mathematics. A record of training needs and provision is maintained by the Assistant Head teacher.

4. Roles and Responsibilities

The Mathematics Leader's role will include the following responsibilities:

- To ensure that the mathematics policy document reflects the requirements of the National Curriculum and the needs and ethos of the academy;
- To review and update the Mathematics policy document every two years;
- To provide leadership and guidance in the area of mathematics, and to support staff as required;
- To be actively involved in whole-school planning, in co-operation with other subject leaders, in order to maintain a broad, balanced and differentiated curriculum;
- To monitor, review and update medium-term planning for mathematics;
- To monitor and evaluate short term planning for mathematics and evaluate this against the requirements of the National Curriculum for Mathematics;
- To monitor and evaluate teaching delivery against the requirements of the National Curriculum for Mathematics;
- To oversee summative school assessments in mathematics, in accordance with Assessment Policy guidelines, and to be actively involved in mathematics target setting through the academy;
- To monitor pupils' outcomes (at least termly).
- To lead staff meetings and training sessions on issues related to the implementation of the Mathematics curriculum throughout the academy;
- To attend relevant training and subject leader meetings to update knowledge; and to disseminate advice and current information in the subject to staff;
- To undertake an audit/evaluation and action plan on an annual basis;
- To maintain, evaluate and assess the resource base for mathematics teaching, including strategic budgetary planning and the identification of future resource needs;
- To promote parental and governor interest in mathematics;
- To liaise with other schools and agencies;
- To liaise with secondary schools to ensure continuity and progression at the point of transition.

The Class Teacher in Mathematics

The class teacher's role is crucial in the provision of high quality teaching and learning in mathematics. The

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academy supports all teachers, so that they:

- Take account of the age, gender, ethnicity and capability of their pupils
- Show good subject knowledge being competent in teaching the curriculum at their age group and have a knowledge of what comes before and after
- Plan effectively, setting clear objectives which pupils understand
- Challenge and inspire pupils, having high expectations of them
- Use a variety of methods which enable all pupils to learn effectively
- Manage pupils well and insist on high standards of behaviour
- Use time, support staff, other adults and resources, including ICT, effectively
- Assess pupils' work thoroughly and use assessments to help and encourage pupils to make progress
- Use homework effectively to reinforce and extend what is learned in school

The Pupil in Mathematics

The academy supports pupils, so that they:

- Acquire new knowledge and skills, linked to targets
- Develop ideas
- Increase their understanding
- Apply intellectual and creative effort in their work
- Are productive and work at a good pace
- Build resilience when faced with challenge
- Work collaboratively: developing their ability to justify, argue and prove
- Show interest and pride in their work
- Are able to sustain concentration
- Think and learn for themselves in independent sessions
- Assess their own progress and abilities for each objective through use of a marking station (KS2)
- Demonstrate in the plenary and at other times that they understand what they are doing, how well they have done and how they can improve

5. Assessment and Reporting

Assessment

- The academy uses Summative and Formative assessment on O-Track (pupil tracking) as part of its assessment procedure.
- Marking in mathematics is in accordance with the academy marking policy.
- Academy summative assessments in mathematics include:
 - Early Years 2 GLD Mathematics – Number, shape space and measures
 - SATs in Year 2 and Year 6
- All mathematics assessments are made in accordance with Assessment Policy guidelines.
- Our White Rose Maths scheme also includes 'End of block assessments' that teacher's can use to inform ongoing assessment.

- Weekly arithmetic scores and 'TT' rockstars are also used to help inform summative teacher assessment.
- Attainment and progress is reviewed at the end of each term in Pupil Progress Meetings for individual pupils, year groups and classes.
- Mathematics lessons are structured consistently across the school to support congruent assessment and moderation between same year group classes and key stages.
- Through INSET class teachers undertake moderation training; the academy will also be carrying out moderation with other schools in the Trust.
- Use is made of any national and LA assessment criteria.
- The academy is regularly moderated by the LA

Reporting / Record Keeping

Reporting to parents of attainment and progress in mathematics will be in accordance with Government Legislation and the academy's Assessment, Recording and Reporting Policy. They will be informed of their child's progress and attainment in mathematics twice yearly at Parents' Evenings and at the end of each year in a formal written report.

The following mathematics records are maintained in each child's evidence folder and are passed to the following class teacher/school:

- Early Years 2 GLD, and SATs results;
- OTrack sheets for mathematics;
- Pupil Progress sheets;
- Provision maps of intervention work;
- Individual targets are known to children and all children on the special needs register have Running Records;
- EAL records;
- Current times table baseline data (including Y4 Multiplication tables check data passed to Y5 teachers);

6. Parental Involvement

We aim to involve parents directly in the life of the academy, and thus in the development of children's skills, knowledge and understanding in Mathematics.

Parents are recognised as educators too, and their support in Mathematics is encouraged at every opportunity, formally through homework and in other ways. Information relating to Mathematics is provided, to foster positive relations and to provide guidance and support. There is also guidance and advice each September in the curriculum newsletter. Parental support in classrooms and/or in resource making is encouraged, in accordance with academy guidelines.

7. Monitoring and Evaluation

Monitoring and evaluation of mathematics-related planning, teaching delivery and assessment will be undertaken by the mathematics Leader and the Senior Leadership Team during termly Appraisal and work scrutinies.

The subject leader identifies key priorities and evaluates and updates yearly action plans which feed into the Academy Development Plan. Governors are kept informed of key priorities and updated with developments, progress and changes within the subject.

Supporting documents

The following school policy documents should be consulted to support the Maths Policy:

St. Bernadette's Catholic Primary Voluntary Academy

Calculation Policy

Assessment, Recording and Reporting Policy

Marking Policy

SEND Policy

Equal Opportunities Policy

Safeguarding Policy

Continuing Professional Development Policy

ICT Policy

Homework Policy

Policy Review

The Mathematics Policy should be reviewed and updated every two years, during the half-term when Mathematics is the focus subject in the Subject Leader Review Cycle.

TBC by Governors: October 2022