



St. Chad's Catholic Primary School Mathematics Policy

Inu est in Christo

School Mission Statement:

“At St Chad’s we grow in the light of Christ, to share his love and reflect the gospel values”

Introduction

Mathematics is both a *key skill* within school, and a *life skill* to be utilised throughout every person’s day to day experiences.

Rationale

Mathematics gives pupils a uniquely powerful set of tools to understand and change the world. These tools include logical reasoning, problem solving skills and the ability to think in abstract ways. Mathematics is important in everyday life. It is integral to all aspects of life and with this in mind we, at St. Chad’s endeavour to ensure that children develop a positive and enthusiastic attitude towards Mathematics that will stay with them. Curriculum guidance for the Foundation Stage and the National Curriculum for mathematics (2014) describes in detail what pupils must learn in each year group. These combined with our Calculation Policy, White Rose Maths and Classroom Secrets ensures continuity, progression and high expectations for attainment in mathematics.

It is vital that a positive attitude towards mathematics is encouraged amongst all of our pupils in order to foster confidence and achievement is a skill that is essential in our society. At St. Chad’s we use the National Curriculum for Mathematics (2014) as the basis of our mathematics programme. We are committed to ensuring that all pupils achieve mastery in the key concepts of mathematics, appropriate for their age group, in order that they make genuine progress and avoid gaps in their understanding that provide barriers to learning as they move through education. Assessment for Learning, an emphasis on investigation, problem solving, the development of mathematical thinking and development of teacher subject knowledge are therefore essential components of this subject.

Aims of Mathematics

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 develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- **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 simpler steps and persevering in seeking solutions.

At St Chad's Primary school, in conjunction with the National Curriculum we aim to:

- To foster a positive attitude to Mathematics as an interesting and attractive part of the curriculum.
- To develop the ability to think clearly and logically, with confidence, flexibility and independence of thought.
- To develop a deeper understanding of Mathematics through a process of enquiry and investigation.
- To develop an understanding of the connectivity of patterns and relationships within Mathematics.
- To develop the ability to apply knowledge, skills and ideas in real life contexts outside the classroom, and become aware of the uses of Mathematics in the wider world.
- To develop the ability to use Mathematics as a means of communicating ideas.
- To develop an ability and inclination to work both alone and cooperatively to solve Mathematical problems.
- To develop personal qualities such as perseverance, independent thinking, cooperation and self-confidence through a sense of achievement and success.
- To develop an appreciation of the creative aspects of Mathematics and an awareness of its aesthetic appeal.

Principles of Teaching and Learning

The school uses a mastery approach to teaching Mathematics so pupils develop a deep and secure knowledge and understanding of mathematics at each stage of learning. In Years 1 – 5 the whole class is taught mathematics together, with no differentiation by acceleration to new content. The learning needs of individual pupils are addressed through careful scaffolding, skilful questioning and appropriate rapid intervention, in order to provide the necessary support and challenge.

The aim of our curriculum is to explore the big ideas in mathematics, encourage deeper thinking and independence as well as a secure understanding of key mathematical structures. It is not to produce a page of calculations, which is abstract to any real life situation. To support this approach we do not erase incorrect answers or approaches as they provide a valuable clue to the path a child is taking and is valuable assessment information.

Our teachers strive to:

- Build children's confidence and self esteem
- Develop children's independence
- Allow all children to experience regular success
- Contextualise Mathematics
- Use practical approaches to Mathematics (CPA)
- Encourage children to select independently resources to help them
- Challenge children of all abilities, through enrichment rather than acceleration.
- Encourage children to enjoy Mathematics
- Develop a child's understanding of Mathematical language
- Learn from teachers, peers and their own mistakes
- Encourage children to ask as well as answer questions.

Our pupils should:

- Have a well-developed sense of the size of a number and where it fits into the number system (place value).
- Know by heart number facts such as number bonds, multiplication tables, doubles and halves.
- Use what they know by heart to work mentally.
- Calculate accurately and efficiently, both mentally and in writing and paper.
- Draw on a range of calculation strategies.
- Recognise when it is appropriate to use a calculator and be able to do so effectively.

- Make sense of number problems, including non-routine/'real' problems and identify the operations needed to solve them.
- Explain their methods and reasoning, using correct Mathematical terms.
- Judge whether their answers are reasonable and have strategies for checking them where necessary.
- Suggest suitable units for measuring and make sensible estimates of measurements.
- Explain and make predictions from the numbers in graphs, diagrams, charts and tables.
- Develop spatial awareness and an understanding of the properties of 2D and 3D shapes.

To provide adequate time for developing Mathematics, Maths is taught daily and discretely. Although maths is taught as a discrete subject, staff are encouraged to exploit any cross-curricular links and provide opportunities for children to demonstrate their mastery of concepts or skills in other subjects (e.g.: science, ICT, PE, topic).

Maths Curriculum Planning

Mathematics is a core subject in the National Curriculum and we use the objectives from this, resources from White Rose Maths, Classroom Secrets (Y1-6) and the National Council for Excellence in the Teaching of Mathematics (NCETM) to support planning and to assess children's progress.

Objectives are taken from the relevant year band overview and medium term plans. These objectives enable progression in learning towards National Curriculum level descriptors. Class teachers write weekly plans for the teaching of Mathematics. These weekly plans list the specific learning objectives for each lesson and give details of how the lessons are to be taught.

Programmes of study and lesson content are carefully sequenced, in order to develop a coherent and comprehensive conceptual pathway through the mathematics.

- Learning is broken down into small, connected steps, building from what pupils already know.
- Children are allowed time to reflect on new concepts through discussion and their maths journaling.
- Difficult points and potential misconceptions are identified in advance and strategies to address them planned.
- Key questions are planned, to challenge thinking and develop learning for all pupils.
- Contexts and representations are carefully chosen to develop reasoning skills and to help pupils' link concrete ideas to abstract mathematical concepts.
- The use of high quality materials and tasks to support learning and provide access to the mathematics, is integrated into lessons. These may include concrete materials, visual representations and textbooks.

Lesson Structure

Lessons are structured around the concrete – pictorial –abstract approach, providing opportunities throughout for discussion, using mathematical vocabulary, developing mathematical thinking and using multiple representations. There should be opportunities to record independently in every lesson (in different ways). Fact fluency is built into every lesson with a fluency focus session to develop fluency with basic number facts.

The teaching is episodic and whole-class based (in Y1-5) with everyone covering the same content.

Homework

Appropriate homework activities are set for each child. These may focus on the development of fluency with basic facts, e.g.: number bonds or times tables, or provide additional practice of a concept learnt that week.

Classroom Environment

The classroom environment should be mathematically rich and support current learning. Maths working walls should be interactive, clearly visible and provide the children with key vocabulary, number lines and charts, 100 squares, number facts, prompts and challenges appropriate to the age/stage and linked to current learning. A range of concrete materials should be available for every child.

Assessment

This section details the various assessment methods and practices used at St Chad's through which we ensure that children are making appropriate progress.

Formative Assessment (AfL) - (monitoring children's learning)

Assessment is an integral and continuous part of the teaching and learning process at St Chad's and much of it is done informally as part of each teacher's day to day work. Teachers integrate the use of formative assessment strategies such as: effective questioning, clear teacher learning objectives, effective feedback and response in their teaching and marking and observing children's discussion and participation in activities. Findings from these types of assessment are used to inform future planning. Termly, teachers use the formative assessments gained through day to day teaching to assess each child against the National Expectations for their year group in Mathematics.

Summative Assessment – (evaluating children's learning)

Educatr – Online Pupil Tracker

Statutory End of Key Stage Assessment. The National Curriculum requires that each child is assessed for each of the Attainment Targets in Mathematics. This is to be carried out at the end of Key Stage One and at the end of Key Stage Two. At the end of KS 1 a child will normally be working at the expected standard or working above the National Standard, with most children achieving the National Standard, some may be working towards the National Standard. At the end of KS2 a child will normally be within the range of working towards the National Standard, with most children achieving the expected standard or working above the National Standard. Parents will be informed of an overall judgement for Mathematics on their child's end of year report.

Early Years Foundation Stage (EYFS)

We follow EYFS curriculum guidance for Mathematics. However, we are committed to ensuring the confident development of number sense and put emphasis on mastery of key early concepts. Pupils develop models and images for numbers as a solid foundation for further progress.

Resources

Some essential Mathematics resources are kept in each classroom. Further resources relating to key whole school topics are kept in the resources room located between the Year 3 and Year 4 classroom.

Information and Communication Technology

Teachers should use their judgement about when ICT tools should be used, including the use of calculators.

Role of the Subject Leader

- Ensures teachers understand the requirements of the National Curriculum and helps them to plan lessons. Leads by example by setting high standards in their own teaching.
- Prepares, organises and leads CPD and joint professional development.
- Works with the SENCO and SLT.
- Observes colleagues with a view to identifying the support they need.
- Discusses regularly with the Headteacher and the Curriculum governor the progress of implementing National Curriculum for Mathematics in school.
- Monitors and evaluates Mathematics provision in the school by conducting regular work scrutiny, learning walks and assessment data analysis.

Moderating and review

Moderating of the standards of children's work and of the quality teaching in Mathematics is the responsibility of the Mathematics subject leader alongside members of the senior leadership team. The work of the Mathematics subject leader also involves supporting colleagues in the teaching of Mathematics, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school. The Mathematics subject leader gives the Headteacher a yearly report in which s/he evaluates strengths and weaknesses in the subject and indicates areas for further improvement.

A named member of the school's governing body is briefed to oversee the teaching of Mathematics. This governor meets regularly with the subject leader to review progress.

Equal Opportunities

The provision of maths teaching is regardless of race or gender and should allow all children to reach their full potential.

Special Educational Needs/Gifted and Talented

We aim to provide a rich mathematical education, which will develop the potential of all pupils. In line with NCETM guidance on the teaching of mathematics, we recognise that, 'There is no such thing as 'special needs mathematics' or 'gifted and talented mathematics'. Mathematics is mathematics and the key ideas and building blocks are important for everyone.' However a child who is assessed to have special education needs in mathematics will have targets on a IT, be placed on the school's SEN register and receive additional support.

Various enrichment activities are organised throughout the year for pupils who frequently grasp concepts rapidly in the daily mathematics lesson, these focus on deepening their understanding through rich and varied problem solving rather than acceleration. The maths leader is available for advice on the type of challenging and stimulating problems most likely to prepare these pupils for an exciting future in mathematics.

Policy needs reviewing: September 2022