

Mathematics Policy

'Learning and growing together: inspired by the love of Jesus'

Our Mission Statement lies at the heart of all that we do and helps us to define our sense of direction and purpose.

Our curriculum is designed around what makes a Catholic school distinctive and reflects the key areas identified by The Bishop's Conference of England and Wales 2014. These include:

- The Search for Excellence
- The Uniqueness of the Individual
- The Education of the Whole Person
- The Education of All
- Moral Principles

Intent – How is the school's curriculum is coherently planned and sequenced towards cumulatively sufficient knowledge and skills for future learning and employment?(Ofsted Handbook 2019)

The curriculum for maths has been set in light of the requirements of the National Curriculum. It is our intent to teach maths in a way to deepen and challenge the understanding and thinking of our pupils. Our maths curriculum is focused on creating **resilience** and strategic thinking to reach solutions which are **invaluable skills** in their future lives. We aim to help pupils become inquisitive, confident and literate mathematicians. Mathematics is integral to all aspects of life and with this in mind we endeavour to ensure that pupils develop a healthy and **enthusiastic** attitude towards mathematics that will stay with them.

We have developed the maths curriculum to enable all children to progress in **fluency, reasoning and problem solving** in a planned and sequential way. We aim to support children to retain mathematical fluency and understanding by the rigorous practice of maths and arithmetic skills **daily**.

The curriculum has been **planned** as a clear framework that guides teachers and children through weekly objectives that have been **sequenced** to ensure knowledge, skills and understanding are retained and remembered.

Implementation - Teachers have good knowledge of the subject(s) and courses they teach. Leaders provide effective support for those teaching outside their main areas of expertise; Teachers present subject matter clearly, promoting appropriate discussion about the subject matter being taught. They check pupils' understanding systematically, identify misconceptions accurately and provide clear, direct feedback. In so doing, they respond and adapt their teaching as necessary without unnecessarily elaborate or individualised approaches.(Ofsted handbook 2019)

Mathematics Curriculum Planning

From September 2016, St Aidan's Catholic Primary school has developed a mathematical curriculum with **greater depth** and reasoning. Primarily using the White Rose Planning Scheme,

the key aims of the National Curriculum are organised into blocks of learning. These blocks are then broken down into smaller steps which integrate **fluency, problem solving and reasoning**. Problem solving is at the **heart** of lessons alongside a CPA approach to enable all pupils to make progress and reach expected outcomes. They have free access to concrete materials and manipulatives enabling all children to access the maths curriculum in their year group.

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.*

The subject lead supports colleagues with their subject knowledge and cascades effective teaching techniques and approaches through staff meetings, CPD and feedback from monitoring such as learning walks and book scrutiny. There is regular monitoring of the mathematical curriculum each half term to support **effective teaching** and share good practice. Throughout the year, there is provision made to offer specific CPD to teaching staff and teaching assistants in order to sustain effective teaching practice.

Lessons involve pupils **contributing** regularly, using reasoning and specific mathematical vocabulary. Teachers scaffold learning and prompt mathematical thinking. Pupils may be sat in ability groups or mixed ability seating according to the aims of the learning. This is in order to promote **discussion** and the **sharing** of ideas and strategies. It enables challenge and guided teaching where required.

Teaching staff will often monitor throughout the lesson posing questions to **stretch** children's thinking, prompting reflection or directly intervening to challenge misconceptions and move learning on.

Lesson Structure

From the outset, time may be given to review and recap understanding from a **previous lesson**. Teachers will pose problems initially and prompt children to discuss and share ideas for solving. There are opportunities for children to put forward their thinking and reasoning, this may include applying fluency and what they know already.

Shared teaching will model and **refine** strategies for solving the problem. Focus on mathematical language both modelled by teaching staff with the repetition and display of targeted language to be used.

Throughout lessons, children are encouraged to **talk** and **reason** mathematically. They are able to prove their strategies or solutions through a range of approaches. Children will then work independently completing further tasks.

Teaching staff give direct feedback where appropriate meaning misconceptions can be instantly corrected. Similarly teachers can adapt their teaching approach during the lesson dependant on the learners and their response. Teachers can plan forward from lesson outcomes and ensure clear **sequenced** lessons.

EYFS

The maths curriculum in Nursery is guided by the Early Learning Goals, which mirror the Reception Learning Objectives in the Renewed Framework and guidance provided in the Development Matters document.

Again there is importance placed on **depth** of understanding and presenting maths content in problems where children can develop **resilience** and strategic thinking with the use of manipulative, scaffolding teaching and **effective questioning**.

Continuous provision enables pupils to regularly engage with the maths curriculum and further develop their own **independent** skills and understanding.

We encourage creative work within EYFS as this is a part of the Early Years curriculum. We look to introduce, practise and develop these skills by **teaching and modelling** and then encouraging children to apply these skills independently.

We enhance the **Mathematics Specific Area** as a starting point for developing early knowledge, skills and understanding in mathematics:

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 shapes, spaces, and measure.

The range of experience encourages children to **make connections** between one area of learning and another and so extends their understanding.

We provide a **rich environment** in which we encourage and value creativity. We give them the opportunity to work independently, within small groups and alongside other adults.

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 [for example, 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.

Key Stage 2

Year 3 and 4

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.

Year 5 and 6

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.

At St Aidan's, we know that effective teaching of this subject requires **expertise** and **knowledge** on the part of the teachers. We commit to engaging with training where available for all staff and for the subject leader to remain a point of help and advice.

We look to be persistent in asking children to **remember** what they have learned. **Feedback** in the mathematics book will be positive and formative in developing key skills, knowledge and understanding.

Impact - Pupils develop detailed knowledge and skills across the curriculum and, as a result, achieve well.

Our maths curriculum is intended to give our pupils **secure mathematical fluency** and the ability to develop strategies to respond to a range of different problems which are presented in a number of ways. We hope pupils become resilient and systematic in their approach. Our maths curriculum ought to engage children in all aspects of mathematical skills and procedures in a meaningful and lasting manner. Ultimately, we want pupils to **achieve well** at St Aidan's and equip them with skills which can be transferable in the next stages of their education and future lives.

Assessment and recording

Teachers **assess** throughout maths lessons and use outcomes of pupils work and their own explanations to make judgements about their progress.

These **judgements** will often inform next steps in planning and structured interventions for those who may need further support.

Pupils will be **formally assessed** termly to ensure they are retaining both fluency and taught strategies for problem solving across different strands of mathematics. This enables teachers and leadership to track pupil progress and intervene to reduce gaps in learning.

The class teacher will use outcomes in termly assessments to also inform planned interventions and have support from the subject lead in making decisions about the most **effective intervention**.

The impact and measure of this, is to ensure that children at St. Aidan's Catholic Primary are equipped with historical skills and knowledge that will enable them to be **ready** for the curriculum at Key Stage 3 and for life as an **adult** in the wider world.

Resources

We have a wide range of resources to support the teaching of mathematics across the school which are stored in a classroom resource areas.

Monitoring and review

Our mathematics leader monitors this subject through scrutiny of books or examples of work for each year group, observing lessons/learning walks and through pupil voice feedback. This monitoring will reflect the '**deep dive**' methodology applied to other subjects by senior leaders. It is also the responsibility of our mathematics leader to support colleagues in the teaching of mathematics where and when applicable.