

Promoting, Valuing and Celebrating Mathematics

Achievements in a Christian Setting.

'I am the Good Shepherd; I know my sheep and my sheep know me.' John 10:14

"The study of mathematics, like the Nile, begins in minuteness but ends in magnificence."

– Charles Caleb Colton

The difference between those who succeed and those who don't is not the brains they were born with, but their approach to life, the messages they receive about their potential, and the opportunities they have to learn. -Jo Boaler, Maths Mindsets

Mastery of Mathematics is achievable by ALL pupils. -Debbie Morgan, NCETM

St Paul's Church of England Junior School Mathematics Policy Statement

At St Paul's CofE VC Junior School, we believe in developing maths for life, teaching children to become mathematicians and not just becoming good at maths. We encourage children to develop mathematical skills that enable them to explore and solve problems encountered in the 'outside world'. Our maths curriculum teaches and develops a logical approach to solving problems through fluency in calculations, including written and mental strategies that are valuable in everyday life. We believe that every child has a right to these skills and through a range of activities; we aim to provide them with a 'tool box' that they can apply when solving problems in 'real life'. Getting the right answer is not the fundamental purpose of mathematics – it is the journey to the answer that is key, therefore we encourage children to explain their journey to how they know their answer is correct with clear reasoning.

We believe that in order to gain and develop these skills in mathematics, children need to be given opportunities to learn through a variety of approaches which challenge and stimulate. Children journey through concrete, pictorial and abstract representations of maths to secure understanding and enable them to reason and problem solve accurately. It is the understanding of the journey that enables them to develop into confident and secure mathematicians. Their mathematical experiences should allow them to succeed to boost their confidence and be sufficiently challenging to enable them to apply their knowledge and then learn new concepts.

Our maths curriculum has been organised into the different areas of maths:

Number – Number, Place Value

Number – Addition, Subtraction, Multiplication and Division Number – Fractions, Decimals and Percentages

Ratio and Proportion

Measurements Geometry – Properties of Shapes, Position and Direction Statistics

Algebra

These areas of mathematics are taught repeatedly throughout each year – enabling children to develop and consolidate their learning with repeated practise and application to deeper problems. Not every year will cover all these aspects of maths – due to their complexity. As pupils progress through the Key Stage, they take on greater demands within maths and are taught more complex aspects of mathematics with the expectation that the pupils 'toolkit' has developed sufficiently so that they can meet the demand of the challenging concepts. For example Algebra and Ratio and Proportion are taught solely in Year 6. In some cases there are strong cross curricular links where maths can be explored or reinforced in other subjects. A clear example of this is Statistics which are further developed in Science and Geography.

Some of these areas of mathematics easily overlap. The curriculum has been designed in this way to promote links between the different areas of mathematics and to promote the application of mathematics to real life contexts. This aids understanding and provides opportunities to deepen understanding.

Skills and Understanding

We believe that during the Key Stage, children should be taught to:

- ✓ investigate and solve problems by breaking questions into manageable steps, identifying information needed, selecting and using appropriate methods and equipment (including ICT) and applying knowledge gained previously
- ✓ solve routine and non-routine problems by making connections between mathematical areas, noticing patterns, making estimates and checking results
- ✓ represent questions and problems in multiple ways
- ✓ communicate using notation, images, diagrams and symbols in order to present and interpret solutions in the correct context
- ✓ reason mathematically using precise language; explain their thinking and methods and suggest alternative ways of tackling problems
- ✓ understand and investigate general statements and search for patterns in their results
- ✓ use numbers and the number system to solve problems in a variety of mathematical contexts (e.g. fractions, decimals, percentages)
- ✓ use fluent and efficient mental and written strategies for a variety of numerical problems
- ✓ process, represent and interpret data in a variety of forms

Our Aims:

We aim to develop 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
- ✓ can 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 problem into a series of simpler steps and persevering in seeking solutions.

Our Strategies

At St Paul's CofE VC Junior School we seek to involve a wide range of strategies to meet the individual needs of our pupils in studying Mathematics by providing:

- ✓ The new National Curriculum for Mathematics is used to devise our maths curriculum. Where possible, themes are used to encourage children to have a purpose for doing their Maths work and an end product where their skills have been used.
- ✓ Each of the areas will be covered each year as indicated by our maths curriculum. Year groups will allocate the suggested hours as appropriate to allow them to deliver the best possible mathematics curriculum; making links with other subjects where appropriate e.g. linking data handling to geography, science and ICT.
- ✓ Children will work in class groups, with all the class focusing on the same objective but may work to different depths. Tasks will focus on fluency of calculations, reasoning of their mathematical journey to an answer and solving problems. Work will be recorded in a range of ways; including formal written methods, informal jottings, photographs of concrete resources used and images drawn to support calculations. Children will correct any mistakes in their books and this will be marked by the teacher.
- ✓ Correct maths vocabulary will be modelled by all staff and we will encourage children to explain their reasoning using mathematical terminology.
- ✓ Squared maths books will be used to encourage clear, logical and efficient recording of work.
- ✓ All pupils will receive a daily maths lesson, lasting for approximately 50 – 60 minutes. Lessons will include elements of mathematical fluency practise, reasoning of answers and solving of problems. Plenaries will be used throughout lessons to assess pupil's understanding and confidences and introduce next steps.
- ✓ There will be a weekly calculation lesson focused on developing children mental and written arithmetic.
- ✓ There will be opportunities for children to work individually, in small groups and as part of a whole class.
- ✓ Children will be encouraged to work collaboratively and cooperatively.

Our Resources

At St Paul's CofE VC Junior School:

- ✓ Maths resources will be accessible within each classroom in order to enable all children to choose equipment which will help them to learn.

- ✓ Key maths resources that support daily learning are located in each classroom in toolboxes. These include ways of representing numbers in different ways, place value cards and equipment useful for calculating. Specific maths resources that are usefully for particular areas of maths are stored in the central resources area by Cornhill class.
- ✓ Laptops and iPads are available in for each year group to support teaching and learning.
- ✓ Interactive Whiteboards are used in each session to model and explore mathematical concepts.
- ✓ 55 club to develop and celebrate achievement in times table fact fluency.
- ✓ TTrackstars is an online resource used across the school. It allows children to individually access and practise times table fluency. It can be accessed at home and school and is celebrated within the school with certificate and a leader board display.

Our Curriculum Leader

The member of staff responsible for the leadership and development of Mathematics throughout the school is Tim Hole. He will:

- ✓ Seek to enthuse pupils and staff about Mathematics and promote high standards of achievement and high quality provision
- ✓ Advise and support staff in the planning, delivery and assessment of Mathematics
- ✓ Manage and develop all resources for Mathematics
- ✓ Monitor and evaluate Mathematics throughout the school
- ✓ Keep up to date with current developments by attending courses, liaising with colleagues across from other schools, and use this as a basis for staff development activities
- ✓ Lead assessment in maths through the moderation of pupils' work, pupil interviews and the analysis of teacher assessment / test data
- ✓ Ensure the action plan is current and regularly reviewed
- ✓ Lead regular workshops for parents to share the strategies and to support the learning of maths at home.

Assessment, Record Keeping and Reporting

Every child at St Paul's will be assessed to ensure continuity, progression and high standards of achievement in Mathematics.

- ✓ Assessment and record keeping will be carried out regularly by class teachers. Teachers will regularly assess and reflect on children's growing understanding and confidence in order to provide the right support and challenge for the following session.
- ✓ Teachers will track pupil progress in line with the each phase's key objectives to assess whether children are on track to meet Age Related Expectations by the end of the year. This will be done at the end of each phase and the data given to the Headteacher to form part of the pupil progress reviews. Evidence will be collected by the Maths Leader periodically to monitor progress across the school.
- ✓ More confident children will be stretched within the classroom with activities designed to deepen, extend and enrich their understanding with more opportunities to reason and solve non-routine problems making broader links with other aspects of maths.
- ✓ Weekly, short term planning for maths will be the responsibility of the year group and will be based on regular and on-going assessment and dialogue.

To support the planning of maths in our school, the following documents are available:

- ✓ New National Curriculum supporting materials, guidance and resources
- ✓ Long Term Plan – Yearly Overview
- ✓ Medium Term Planning
- ✓ St Paul's CE Junior School Calculation Policy
- ✓ NCTEM Mastery Documents
- ✓ RTP progress criteria.
- ✓ White Rose Maths Hub schemes of work

SEND and Equal Opportunities

- ✓ Planning should take into account the needs, gender and race within each year group so that all children find the work stimulating and, whenever possible, appropriate to their interests.
- ✓ All children have their specific needs met through differentiated work.
- ✓ TA support is planned for and provided in relation to identified needs for individuals and groups.

Parental Involvement:

At St Paul's CE Junior School, we will encourage parental involvement by:

- ✓ Encouraging parents to attend the meet the teacher evenings
- ✓ Parent and carers will also be expected to assist their children with any homework/topics
- ✓ Attend Mathematics workshops
- ✓ Visit after school exhibitions of children's work

Our Success Criteria

We expect 90% of our children to attain standards in line with or above those stated in the National Curriculum end of key stage statements.