



'Underpinned by our Christian values, we create a happy, caring environment. This empowers each and every unique person to dream, believe, achieve and flourish.'

'In the same way, you should be a light for other people.
Live so that they will see the good things you do'

Matthew 5:16 (ICB)

MATHEMATICS POLICY

JANUARY 2022

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Intent

At St Peter's CE Primary School, we inspire every child to be happy, confident, self-motivated and resilient so that they achieve personal success and will be able to make a positive contribution to society.

Through a creative approach, we aim for each child to achieve the highest standard they possibly can. The school values of honesty, ambition, care, teamwork, respect and fairness underpin everything that we do in school. We believe that pupils need to develop a secure knowledge-base in mathematics, which follows a clear pathway of progression as they advance through the primary curriculum while ensuring that the high expectations of the learning objectives are met, as stated in the National Curriculum 2014.

The programmes of study are organised into distinct areas, however pupils are encouraged to make rich connections across mathematical ideas and apply their mathematical knowledge to science and other subjects.

The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress will always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly will be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material will consolidate their understanding, through a range of different strategies, before moving on.

Throughout their time with us, pupils will:

- Become **fluent** in the fundamentals of mathematics, including the varied and regular practice of increasingly complex problems over time.
- **Reason mathematically** by following a line of enquiry, understanding relationships and generalisations, and developing an argument, justification or proof using mathematical language.
- **Solve problems** by applying their mathematics to a variety of problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Curriculum Implementation

At St Peter's, we aim to enthuse pupils in order to develop their thirst for mathematical knowledge. Our starting point is the National Curriculum 2014 Programme of study and Early Years Foundation Stage Framework. From this, teachers follow our Progression in Skills Long Term Plan and Calculation Policy to ensure all learning builds on prior knowledge and understanding of mathematical concepts from Early Years through to the end of Year 6. This is supported by the White Rose planning document and NCETM resources.

We use a mastery approach to the curriculum to ensure all pupils have the opportunity to build competency by using the CPA (concrete-pictorial-abstract) approach. Pupils are encouraged to physically represent mathematical concepts. Objects and pictures are used to demonstrate and visualise abstract ideas, alongside numbers and symbols. Medium

term planning developed from 'Kate Burton Mathematics' breaks knowledge and skills down into smaller steps ensuring children build on their knowledge and skills each term. Domains are revisited regularly.

At St Peter's we teach mathematics in a way that:

- exposes pupils to calculations, problem solving and reasoning opportunities;
- encourages pupils to use mathematical vocabulary to reason and explain;
- develops mental strategies;
- is engaging for pupils of all abilities;
- allows time for talk in order to stimulate and develop a curiosity for mathematics;
- builds on prior knowledge;
- challenges pupils to stretch themselves;
- allows pupils to secure their understanding of number and number relationships;
- provides opportunities to link real life contexts.

The learning environment consists of a range of supportive systems for pupils, including: a Maths working wall, current vocabulary and a range of age appropriate manipulatives. Vocabulary is modelled in full sentences when talking to pupils about their work and teachers use effective questioning in order to investigate deeper learning as well as to address misconceptions. The Calculation Policy details the methods to be used to support calculations throughout the school.

Early Years Foundation Stage (EYFS)

At St Peter's we use the Statutory framework for the Early Years Foundation Stage and we supplement this with a range of different resources. These are used in conjunction with the schools Calculation Policy to ensure consistency of approach throughout the school and that pupils are well equipped for their next level of development.

Our focus for mathematics in the Early Years Foundation Stage(EYFS) is to ensure that children develop a strong grounding in number in order for them develop the necessary building blocks to excel mathematically. There are four main areas that collectively underpin pupils early mathematical learning which provide the firm foundations for the Mathematics that pupils will encounter as they progress through primary school. They are: Cardinality, Counting, Comparison, Composition. By the end of the Early Years Foundation Stage, children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers. By providing frequent and varied opportunities to build and apply this understanding - such as using manipulatives, including small pebbles and tens frames for organising counting - children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built. In addition, it is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures. It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes.

Throughout EYFS, we incorporate a range of small and whole group teaching which develops pupils practical and concrete skills. Pupils are provided with opportunities to transfer these to all areas of the curriculum through a stimulating learning environment both indoors and outdoors. This also enables pupils to make links to real life contexts. Teacher observations and assessments are used to move learning forward at a suitable pace for our pupils which allows them to grasp mathematical concepts and develop fluency and reasoning skills. A range of practical equipment that the pupils can use in their everyday focused activities and play ensures Maths skills are deepened and consolidated. Staff model precise mathematical vocabulary when discussing Maths with the pupils which when coupled with an engaging and practical approach to mathematics allows our pupils to thrive.

Key Stage 1

Our 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 involves working with numerals, words and the four operations which is supported by a range of practical resources. At this stage, our pupils develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching involves 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, the majority of our pupils know their number bonds to 20 and be precise in using and understanding place value. We place an emphasis on practice at this early stage which aids fluency. Pupils learn to 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

In lower Key Stage 2 we ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. Pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers. At this stage, our pupils develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching enables pupils to become increasingly accurate and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. We provide opportunities for our pupils to use measuring instruments with accuracy and make connections between measure and number. By the end of Year 4, the majority of pupils have rapid recall of their times tables up to and including the 12 times table. The majority of pupils are able read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

Upper Key Stage 2

Our 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, the majority of pupils develop their ability to solve a wider range of problems. This includes 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 consolidates and extends

knowledge developed in number. Teaching ensures that pupils classify shapes with increasingly complex geometric properties and learn the vocabulary they need to describe them. By the end of Year 6, the majority of pupils will be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages. The majority of pupils will be able to read, spell and pronounce mathematical vocabulary correctly.

Mental Arithmetic

At St Peter's, the importance of developing pupils' fluency to count mentally is a very important part of mathematical learning. Over the course of each week opportunities for oral/mental activities are planned. Each day, pupils will be given fluency tasks (Quick Maths, CLIC Maths, x tables, TT Rock stars and number bonds) which will enable them to learn and understand mathematical patterns, rules and facts to develop mental calculating strategies. This will encourage pupils to work at speed as well as practise efficient strategies. With a sound grasp of these our pupils' confidence grows, their attitudes towards mathematics remains positive and their learning thrives.

Curriculum Impact

Throughout each lesson, we use formative assessment including regular verbal and written feedback, Close The Gap marking. Extension tasks are given to challenge pupils and to move their learning forward. Pupils will be assessed weekly on their mathematical fluency and quick recall of basic facts through quizzes. We use assessments to influence our planning and ensure we are providing a mathematics curriculum that will allow each child to progress and secure a deep understanding of both conceptual (Knowledge) and procedural (skills) mathematical concepts. At the end of each unit, pupils are assessed based on the objectives that they have covered. Gaps and misconceptions can then be addressed in follow up lessons and future units to ensure pupils have a secure understanding of the mathematical concepts.

In EYFS, observations and assessments are completed regularly throughout the week.

Each term pupils from Year 1 to Year 6 complete a summative assessment to help them to develop their testing approach and demonstrate their understanding of the topics covered.

All pupils will use NFER papers and Year 2 and Year 6 will also use previous SATs papers.

The results from both the formative and summative assessments are then used to identify gaps and misconceptions for individuals and whole class to support teacher planning and determine pupils progress and attainment.

The teaching of mathematics is monitored on a termly basis through book scrutinies, learning walks and pupil voice activities.