

Saint Peter and St Paul Catholic Primary School

Mathematics Policy



Introduction

At Saint Peter and Saint Paul, we offer all the children the opportunity to become fluent mathematicians. They have frequent opportunities to master their learning through both the maths curriculum and the wider curriculum offer.

Mathematics is a creative and highly inter-connected discipline...a high-quality mathematics education should provide 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.' (National Curriculum for Mathematics, 2014)

Intent

At SSPP, we strive for our children to be successful and proficient mathematicians who can solve problems, fluently recall facts rapidly, and reason mathematically using justification. This will provide them with the essential life skills required to be financially capable while understanding and contributing to the world around them. It will allow them to create solutions to problems in a magnitude of settings. To be successful, pupils should display curiosity, resourcefulness, bravery, and flexibility.

Characteristics of a Mathematician

- An understanding of the important concepts and an ability to make connections within mathematics.
- A broad range of skills in using and applying mathematics.
- Fluent knowledge and recall of number facts and the number system.
- The ability to show initiative in solving problems in a wide range of contexts, including the new or unusual.
- The ability to think independently and to persevere when faced with challenges, showing a confidence of success.
- The ability to embrace the value of learning from mistakes and false starts.
- The ability to reason, generalise and make sense of solutions.
- Fluency in performing written and mental calculations and mathematical techniques.
- A wide range of mathematical vocabulary.
- A commitment to and passion for the subject

National Curriculum

The 2014 National Curriculum outlines the expectation that all pupils will:

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.

SOLVE PROBLEMS by increasing 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 solution.

By the time pupil's leave our schools, we expect them to have a good understanding of number and place value, addition and subtraction, fractions (including decimals and percentages), ratio and proportion, measurement, geometry, statistics, and algebra.

We want every pupil to make choices about the mathematics that they use and to be able to apply these skills when problem solving and reasoning.

By the end of each academic year the majority of pupil's working at age related expectations.

Implementation

All teachers follow a termly overview plan and are encouraged to design lessons using a range of resources, including, but not limited to, the White Rose Maths Scheme of Learning from the White Rose Maths Hub. A typical Maths lesson provides the opportunity for all children, regardless of their ability, to become confident and capable learners. We are committed to building on prior learning and enabling our children to demonstrate a deep, conceptual understanding of each topic that they can develop over time. They are encouraged to develop fluency in their recall of key facts and a whole school approach to the teaching of calculation strategies is deployed across the school. This ensures a consistent and progressive approach and prepares our children for the upper key stage 2 curriculum. Reasoning and problem-solving skills are explicitly taught to enable children to become independent learners who are prepared to take risks. Additional time is allocated to arithmetic to ensure key skills in calculation are retained. The teaching of multiplication facts continues to be a discrete focus, where the applications of these skills are essential for accessing other areas of mathematics. To make the learning relevant, cross-curricular links are made wherever possible and children are encouraged to apply skills from all areas to complete real-life challenges and give learning a sense of purpose.

To provide adequate time for developing key skills in fluency, reasoning and problem solving, each class teacher will provide at least five daily mathematics lessons per week. This may vary in length but will usually last for about 45 to 60 minutes. Additional mathematics may be taught within other subject lessons when appropriate. Class teachers provide high quality maths lessons ensuring that there is emphasis on direct whole-class teaching, groups/partner work and independent work. We use a range of approaches (concrete, pictorial and abstract methods) following the White Rose scheme of work, teaching mathematical concepts through small steps. Staff are expected to teach and model correct

mathematical language, which scaffolds children's reasoning and explanation skills – sentence stems are used to develop this.

The Early Years of Learning in Mathematics

In EYFS (Nursery and Reception) we follow the EYFS framework. Teachers ensure the children learn through a mixture of adult led activities and child-initiated activities both inside and outside of the classroom.

Mathematics is taught through an integrated approach using material from NCETM Mastering Number, White Rose Maths and Numberblocks. The children have a wide range of structured play resources available to them throughout the year - this is known as "continuous provision". The adults model the use of these resources and the appropriate mathematical language as they support the children in their play. Our overarching aims are for children to:

- Make good progress towards the Early Learning Goals
- Be confident in communicating their ideas.
- Develop a positive attitude towards maths and be willing to 'have a go'

Our mastering number sessions cover all the number work that will support the children to meet the Early Learning Goals and the learning trajectories that build children's understanding and help them make connections between different mathematical concepts.

Progression in Key Stage 1/2

In Key Stages 1 and 2 mathematics teaching will follow the 2014 National Curriculum guidance. Children, as in all areas of learning, need to have the opportunity for exploration and investigation when experiencing new concepts, knowledge and skills. At all stages, children will need to have the opportunity to carry out investigational activities, practise and consolidate skills and knowledge and observe, use and apply mathematics in real situations. Frequent 'Talk for maths' opportunities should be provided to enable children to discuss the strategies they have used and their reasoning this will aid them in their ability to accurately self and peer assess.

Mental and Written Arithmetic

The importance of developing children's fluency to count mentally is a **very** important part of mathematical learning. Over the course of each week opportunities for oral/mental/written activities which will enable the children to learn mathematical patterns, rules and facts and to practise and recall these in order to develop mental calculating strategies will be planned for.

Standard Written Methods

Planning follows the school's calculation policy which makes explicit the stages to be taught when using a written method for each operation (see calculation policy). Children are encouraged to develop their own mathematical thinking by using their own written calculations moving towards standard written methods as they progress through the school. Standard written methods are reliable and efficient procedures for calculating which once fully understood, can be used in many different contexts.

At Saint Peter and St Paul, we believe that as well being able to use a range of written and mental calculation strategies, effective and skilled mathematicians have the ability to

choose the most appropriate method for the strategy. Therefore, children are given regular opportunities to reason about the most appropriate method and apply what they have been taught throughout the curriculum.

Mathematical Language

It is essential that pupils develop appropriate mathematical language from the outset, and this is an important part of the planning. Throughout the school, pupils should be given the opportunity to develop and use their mathematical language, including the use and application of mathematical signs. Each mathematical theme has its own specific language which should be shared with pupils and displayed around the classroom as an aid memoir.

Teaching Strategies and Pupil Groupings

The main aim of mathematics at Saint Peter and St Paul is that all children make excellent progress whilst aspiring to reach either age related expectations, or greater depth within mathematics.

It is important that we incorporate a range of teaching strategies within mathematics in order to accommodate the differing learning needs of the children and the demands of the mathematics curriculum. Other adults working within the classroom will support a range of groups as directed by the class teacher and must be flexible based ongoing assessment for learning.

At all stages of the lesson children need opportunities to make decisions, communicate their findings and develop reasoning and problem-solving skills. All children continue to have access to high quality teaching and learning and they are given opportunity for regular reasoning and problem-solving activities.

Resources

Mathematics resources are mainly stored centrally. Classes also have a range of resources appropriate to age and ability of the children. These include bead strings, number lines, multilink etc. Children in all classes are encouraged to choose and use appropriate resources to aid the task and develop independence and resourcefulness. Various ICT resources are also available to complement the models and images tool both in school and on the intranet website. Laptops and i-pads are available for the children to use when appropriate.

Marking

Marking will take place daily and will be fit for purpose. It will be used to inform the children, teachers, other adults, and parents. It will follow the guidance in the school's marking policy. Marking will refer to the work completed by the children there and then to address misconceptions. Live marking forms an important part of our assessment for learning and will take place frequently, when appropriate, in order to move the learning on. This is an essential part of ensuring that the learning objective and success criteria set for

the lesson have been met and that any misconceptions have been addressed. Live marking may also be used in order to inform and assess against key objectives.

Assessment in Mathematics

Assessment is an integral part of the learning process. Over the course of the year opportunities are provided for formal assessment whilst teacher assessments are ongoing.

Baseline assessment activities are carried out in the Autumn with all reception pupils. The outcomes of these are used to inform planning in the Early Years. At the end of each term children in year 1, 3, 4 and 5 will complete NFER mathematics tests. These tests are based upon the key objectives for the term and stage of the academic year. All NFER tests allow children to be given a standardised score so that their progress can clearly be tracked. A whole school tracking system is used to closely monitor children's progress throughout the school. Teacher assessments are entered termly and are closely analysed to identify children working at greater depth or who are at risk, appropriate intervention is then put in place to close gaps.

Statutory Assessment Tests (SATs) are used for children in Year 2 and 6, plus children in Year 4 are also required to take multiplication tables check (MTC) in the Summer Term. The purpose of the check is to determine whether pupils can fluently recall their times tables up to 12, which is essential for future success in mathematics.