Mathematics

THE NATURE OF MATHEMATICS

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides 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 about the subject. (National Curriculum 2014)

THE AIMS OF THE 2014 NATIONAL CURRICULUM ARE FOR OUR PUPILS TO:

- Become fluent in the fundamentals of mathematics through varied and frequent practice with complexity increasing over time.
- Develop conceptual understanding and ability to recall and apply knowledge rapidly and accurately.
- Reason mathematically; follow a line of enquiry, conjecture relationships and generalisations.
- Develop an argument, justification and proof by using mathematical language.
- Problem solve by applying knowledge to a variety of routine and non-routine problems. Breaking down problems into simpler steps and persevering in answering.

At St. Mary's our aim is to ensure pupils develop:

- positive attitudes towards learning and awareness of the relevance of mathematics in the real world
- competence and confidence in using and applying mathematical knowledge, concepts and skills
- an ability to solve problems, to reason, to think logically and to work systematically and accurately
- skills needed to work both independently and in cooperation with others
- confident communication skills in maths where pupils ask and answer questions, openly share work and learn from mistakes
- an ability to use and apply mathematics across the curriculum and in real life
- an understanding of mathematics through a process of enquiry and investigation
- Give pupils a broad range of Mathematic and real-life experiences and cross-curricular links
- Teachers seek to explore and utilise further opportunities to use and apply mathematics across all subject areas.

Breadth of Study

Through careful planning and preparation, we ensure pupils are given the opportunity for:

- Practical activities and mathematical games
- Problem solving
- Routine and non-routine problems
- Individual, group and whole class discussion and activities
- Open ended and closed tasks
- Using a range of methods of calculations

TEACHERS' PLANNING AND ORGANISATION

Each class teacher is responsible for the mathematics in their class in consultation with and with guidance from the mathematics subject leader.

- a mathematics lesson every day in all classes
- Mathematics lessons give time for children to develop fluency, reasoning and problem-solving skills
- a clear focus on direct, instructional teaching and interactive oral work with the whole class and group
- an emphasis on the key aims of the National Curriculum which are fluency, reasoning and problem solving.
- Foundation Stage base their teaching on objectives in the Framework for Reception; this ensures that they are working towards the 'Early Learning Goals for Mathematical Development'.

Mathematics teaching at St Mary's follows the principles below

- Instruction – giving information and structuring it well.
- Demonstrating – showing, describing and modelling mathematics using appropriate resources and visual displays.
- Explaining and illustrating – giving accurate and well-paced explanations.
- Questioning and discussing.
- Consolidating.
- Reflecting and evaluating responses – identifying mistakes and using them as positive teaching points.
- Summarising – reviewing mathematics that has been taught enabling children to focus on next steps

EYFS

Children in EYFS are given lots the opportunity to use a range of equipment and everyday resources to help them develop their mathematical understanding. Children will have mathematical language modelled and be encouraged to use this language to develop their language alongside the use of concrete material. Daily teaching will take place in either whole class, groups or 1-1 dependant upon the needs of the children. Children's learning will be supported through learning in the continuous provision, independent exploration and teacher led learning.

Year 1 Year 2 Year 3 Year4

In Years 1,2 3 and 4 teaching follows the Red Rose maths mastery approach. The children have lots of opportunity to learn new vocabulary and develop their speaking skills. The children complete guided learning with the teacher and then move to independent and deeper learning tasks when appropriate.

Year 5 and Year 6

In Years 5 and 6 Follow Lancashire's LAPS and KLIPS to ensure learning allows for consolidation and progression. Children are taught use practical resources, images and skills are carefully built upon. Children have the opportunity to apply the skills, knowledge that has been taught in independent or supported tasks.

PUPILS' RECORDS OF THEIR LEARNING

In EYFS lots of the children's learning is practical the staff will record learning in both the mathematics book and in the children's Learning Journey. When children record their own learning, this will be added to their learning Journey when completed in the Continuous Provision or in their Mathematics book when completed as part of the daily Mathematics lesson.

In Years 1 2 3 4

Children will complete guided learning and independent learning in their Red Rose Mathematics booklet. They will also have Mathematics books to record deeper learning, pre-leaning or any additional learning.

In Year 5 and 6

Learning is record in the children's mathematics books and on wipe boards.

MARKING AND FEEDBACK

The process of marking and feedback should be a positive one, with the recognition of the efforts that have been made. Marking of children's learning is essential to ensure they make further progress. At St. Mary's teacher provide marking and feedback in a number of ways:

- Children are encouraged to self-check their work
- Written comments are age appropriate to the child
- Children are given time to read teachers' comments and make corrections or improvements. Responses to marking are made as close to the work as possible.
- Verbal feedback on their learning giving to children frequently to provide them with the opportunity to develop their understanding.
- Some pieces of work in mathematics can be marked by children themselves or peers
- Teaching Assistant who has been supporting learning during the lesson also provide feedback to children

ASSESSMENT

Assessment is an integral part of teaching and learning and is a continuous process. Teachers make assessments of children in a number of ways:

- regular marking of work
- analysing errors and picking up on misconceptions
- asking questions and listening to answers
- facilitating and listening to discussions
- making observations These ongoing assessments inform future planning and teaching. Lessons are adapted readily, and short-term planning evaluated in light of these assessments
- Learning that is completed independently
- End of unit tacks
- Test papers
- Cold task
- Use of KLIP statements

Pupil progress meetings are held with the SLT where the progress of pupils is discussed, and appropriate intervention considered and put in place where appropriate. Formal Assessment In the summer term, pupils in Year 2 and 6 complete statutory end of Key Stage assessments in both calculation and mathematical reasoning. The pupils in the remaining classes throughout the school continue to be assessed using the end of unit and end of term materials from Lancashire and Red Rose Mathematics.

Monitoring and Evaluation

The mathematics coordinator is released regularly from class in order to work alongside teacher and teaching assistants. This time is used to monitor and evaluate the quality and standards of mathematics in the school and support teaching within the classroom. Lesson observations, learning walks, book scrutinises, pupil voice alongside pupil progress meetings provide the math coordinator with information needed to monitor the teaching of Mathematics across the school.