

St Stephen's C of E Primary School Mathematics Policy

"Aspire to Greatness"

'For we are God's handiwork, created in Christ Jesus to do good works, which God prepared in advance for us to do.' Ephesians 2 v 10



Statement of Intent

At St Stephen's Primary school we value every pupil and the contribution they have to make. As a result we aim to ensure that every child achieves success and that all are enabled to develop their skills in accordance with their level of ability. Mathematics is both a key skill within school, and a life skill to be utilised throughout every person's day to day experiences.

St Stephens C of E Primary Mathematics equips pupils with a uniquely powerful set of tools to understand and change the world. These tools include logical reasoning, problem solving skills and the ability to think in abstract ways. Mathematics is important in everyday life. It is integral to all aspects of life and with this in mind we endeavour to ensure that children develop a positive and enthusiastic attitude towards mathematics that will stay with them.

The National Curriculum for mathematics (2014) describes in detail what pupils must learn in each year group. Combined with our Calculation Policy, this ensures continuity, progression and high expectations for attainment in mathematics.

We believe it is vital that a positive attitude towards mathematics is encouraged amongst all of our pupils in order to foster confidence and achievement in a skill that is essential in our society. At St Stephen's we use the National Curriculum for Mathematics (2014) as the basis of our mathematics programme. We are committed to ensuring that all pupils achieve mastery in the key concepts of mathematics, appropriate for their age group, in order that they make genuine progress and avoid gaps in their understanding that provide barriers to learning as they move through education. Assessment for Learning, an emphasis on investigation, problem solving, the development of

mathematical thinking and development of teacher subject knowledge are therefore essential components of the St Stephen's approach to this subject.

Aims

Our aims are :

To foster a positive attitude to mathematics as an interesting and attractive part of the curriculum.

To develop the ability to think clearly and logically, with confidence, flexibility and independence of thought.

To develop a deeper understanding of mathematics through a process of enquiry and investigation.

To develop an understanding of the connectivity of patterns and relationships within mathematics.

To develop the ability to apply knowledge, skills and ideas in real life contexts outside the classroom, and become aware of the uses of mathematics in the wider world.

To develop the ability to use mathematics as a means of communicating ideas.

To develop an ability and inclination to work both alone and cooperatively to solve mathematical problems.

To develop personal qualities such as perseverance, independent thinking, co operation and self-confidence through a sense of achievement and success.

To develop an appreciation of the creative aspects of mathematics and an awareness of its aesthetic appeal.

Principles of Teaching and Learning in a Mastery Curriculum in Key stage 1 and 2

The school uses a variety of teaching and learning styles in mathematics during each lesson. The pupils are taught in class groups and seated in mixed ability groups as we believe that all pupils can attain highly in mathematics and every pupil will have different strengths and development areas. Therefore groupings within classes are flexible and pupils will work in different groups dependent on their need.

The large majority of pupils progress through the curriculum content at the same pace. Differentiation is achieved by emphasising deep knowledge and through individual support and intervention. The questioning and scaffolding individual pupils receive in class as they work through problems will differ and pupils who grasp concepts rapidly are challenged through more demanding problems which deepen their knowledge further.

Practise and consolidation play a central role to mathematics learning. Carefully designed variation within this builds fluency and understanding of underlying mathematical concepts in tandem. Teachers use precise questioning in class to test conceptual and procedural knowledge, and assess pupils regularly to identify those requiring intervention so that all pupils keep up. Teachers ensure that concepts are modelled to pupils using multiple representations. This ensures that procedural and conceptual understanding are developed simultaneously.

Curriculum design

A detailed, structured curriculum is mapped out across all phases, ensuring continuity and supporting transition. Effective mastery curricula in mathematics are designed in relatively small carefully sequenced steps, which must each be mastered before pupils move to the next stage. Fundamental skills and knowledge are secured first. This often entails focusing on curriculum content in considerable depth at early stages.

Lesson design

Lessons are crafted with care and are often perfected over time, drawing on evidence from observations of pupils in class. A set planning format is used which demonstrates the teaching of the objectives, differentiation for different groups of children, fluency and support.

Pupil support and differentiation

Taking a mastery approach, differentiation occurs in the support and intervention provided to different pupils, not in the topics taught, particularly at earlier stages. There is often no differentiation in content taught, but the questioning and scaffolding individual pupils receive in class as they work through problems will differ, with higher attainers challenged through more demanding problems which deepen their knowledge of the same content. Pupils' difficulties and misconceptions are identified through immediate formative assessment and addressed with rapid intervention – commonly through individual or small group support.

Productivity and practice

Fluency is taught every day and comes from deep knowledge and practice. Pupils work hard and are productive. At early stages, explicit learning of multiplication tables is important in the journey towards fluency and contributes to quick and efficient mental calculation. Practice leads to other number facts becoming second nature. The ability to recall facts from long term memory and manipulate them to work out other facts is also important.

Our pupils should:

- have a well-developed sense of the size of a number and where it fits into the number system (place value)
- know by heart number facts such as number bonds, multiplication tables, doubles and halves
- use what they know by heart to figure out numbers mentally
- calculate accurately and efficiently, both mentally and in writing and paper,
- drawing on a range of calculation strategies
- make sense of number problems, including non-routine/'real' problems and identify the operations needed to solve them

- explain their methods and reasoning, using correct mathematical terms
- judge whether their answers are reasonable and have strategies for checking them where necessary
- suggest suitable units for measuring and make sensible estimates of measurements
- explain and make predictions from the numbers in graphs, diagrams, charts and tables
- develop spatial awareness and an understanding of the properties of 2D and 3D shapes

To provide adequate time for developing mathematics, maths is taught daily and discretely. However, application of skills are linked across the curriculum where appropriate.

Maths Curriculum Planning

Mathematics is a core subject in the National Curriculum and we use the objectives from this to support planning and to assess children's progress.

Staff in key stage 1 and 2 use the White Rose Hub long term planning to ensure coverage of all areas of the National Curriculum and medium term planning to differentiate objectives according to the year group which they teach. It is the class teacher who completes the weekly plans for the teaching of mathematics. These weekly plans list the specific learning objectives for each lesson and give details of how the lessons are to be taught. The class teacher keeps these individual plans, which they annotate according to the success of the lesson.

Assessment

This section details the various assessment methods and practices used in St Stephen's through which we ensure that children are making appropriate progress and that the activities they take part in are suitably matched to their ability and level of development.

Formative Assessment (AfL) - (monitoring children's learning)

Assessment is an integral and continuous part of the teaching and learning process at St Stephens and much of it is done informally as part of each teacher's day to day work. Teachers integrate the use of formative assessment strategies such as: effective questioning, clear learning objectives, the use of success criteria, effective feedback and response in their teaching and marking and observing children participating in activities. Findings from these types of assessment are used to inform future planning.

Summative Assessment – (evaluating children's learning)

More formal methods are used to determine the achievement of children at various times during the school year:

We use KPIs in the front of the children's maths books and frequent assessments as a way of recording children's progress in objectives covered across a specific term. This information is then moderated and used, to input data on the Lancashire Tracker available to teachers.

Standardised Testing: Standardised tests are used once a year, towards the end of the year. They allow the school to measure each child's attainment in all areas of mathematics, and compare this with an "average" for children of that age. The results are used to monitor individual's progress year on year and to identify those children who have Special Needs in mathematics. Half-termly assessments can also be used throughout the year to aid planning.

Statutory End of Key Stage Assessment.

The National Curriculum requires that each child is assessed in Mathematics. This is to be completed at the end of Key stage One and Key Stage Two. The majority of children will be working at the expected level for their age.

Parental involvement

In Key stage 1 and 2, we encourage parents to be involved by:

- Inviting them into school twice a year to discuss the progress of their child.
- Providing parents with booklets with current targets, an interim report and a yearly report outlining their child's achievements.
- Holding workshops for parents
- Sending homework activities weekly to be completed by or with their child.

Early Years Foundation Stage (EYFS)

Early Years Foundation Stage (EYFS) Practitioners support children in developing their understanding of mathematics in a broad range of contexts in which they can explore and talk about their developing understanding in meaningful ways. Children develop skills in seeking patterns, making connections, recognising relationships, working with numbers, shapes and measures, and counting, sorting and matching. Children use their knowledge and skills in these areas to solve problems, generate new questions and make connections across other areas of learning and development through well planned indoor and outdoor provision.

Children in the EYFS learn by actively playing and exploring as well as being given opportunities to extend their thinking by solving problems. Mathematical knowledge and understanding is developed through a variety of ways such as games, songs, questioning, imaginative play, stories, child initiated learning and adult led teaching.

On entry to reception, adult led sessions are short. However throughout the year there is a gradual shift where adult led sessions are extended over time. Written methods are developed across the year with an expectation on recording their ideas in a way that is meaningful and age appropriate.

Resources

A bank of essential mathematics resources are kept in each classroom. Further resources relating to key whole school topics are kept in the main maths cupboard.

Information and Communication Technology

Teachers use their judgement about when ICT tools should be used.

Role of the Subject Leader

- Ensures teachers understand the requirements of the National Curriculum and helps them to plan mastery lessons. Leads by example by setting high standards in their own teaching.
- Prepares, organises and leads CPD and joint professional development.
- Works with the SENCO and SLT.
- Plan CPD with colleagues with a view to identifying the support they need.
- Discusses regularly with the Headteacher and the mathematics governor the progress of implementing the National Curriculum for Mathematics in school.
- Monitors and evaluates mathematics provision in the school by conducting regular book looks, learning walks and assessment data analysis.

Moderating and review

Moderating of the standards of children's work and of the quality first teaching in mathematics is the responsibility of the mathematics subject leader alongside members of the senior leadership team. The work of the mathematics subject leader also involves supporting colleagues in the teaching of mathematics, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school.

Lesley Edmondson of the school's governing body is instructed to oversee the teaching of mathematics. This governor meets regularly with Carol Cheetham to review progress.

Policy review and update

Last reviewed..... June 2020

Date of next review..... Summer Term 2021