



ST ANNE'S CE (VC) PRIMARY SCHOOL
MATHEMATICS POLICY

'Together with God, Making Learning a Life Long Friend'

OUR VISION FOR MATHEMATICS

Mathematics is considered by many to be the fundamental language in which the universe is written, and which gives us our best chance to understand both its everyday phenomena and its subtlest mysteries. Our intention at St. Anne's is to provide children with the skills, knowledge and experiences they need to not only gain an understanding of maths, but to see its relevance to their lives and foster a love for learning through the enjoyment, curiosity and wonder that maths can bring. A good understanding of maths is a fundamental right of all children, and we ensure that all children are given the opportunity to develop to their highest possible level of attainment.

By encouraging our pupils to see themselves as confident and competent mathematicians, we will develop and nurture their powers of reasoning, creativity, abstract thinking, methodical problem-solving capability, pattern recognition and communication skills. This non-exhaustive list of skills and attributes are not just essential for full access to the National Curriculum but they are similarly essential to a full and fulfilling engagement with life and understanding of the world. They are directly transferrable to any chosen walk of life, and will benefit the children greatly as they leave us for Key Stage 3 and beyond.

SUBJECT AIMS AND OBJECTIVES

The National Curriculum 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 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, and
- can **solve problems** by applying 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 solutions.

At St. Anne's, we ensure that in all aspects we meet or exceed the requirements of the National Curriculum through our rich, balanced and progressive research-informed teaching approach, positive and regular engagement with our wonderful families, effective assessment and enrichment opportunities for the children which raise the profile (and enjoyment) of the subject.

SUBJECT LEADER

The member of staff responsible for leading mathematics at St. Anne's is Mr Josh Nixon.

The teaching of mathematics is monitored frequently by leaders through lesson observations, learning walks, book scans, pupil interviews and family voice consultations.

TEACHING APPROACHES AND PLANNING

Mathematics is taught daily to all children. Lessons include guided and independent whole class, group, paired and individual work. Problem-solving and reasoning are an important part of every lesson. Learning through a clear progression of mental and written methods (see Calculation Policy), our children develop the deep understanding and varied fluency needed to carry out calculations, reason and solve problems independently.

Long- and medium-term planning is structured to ensure full coverage of the National Curriculum Programmes of Study at each appropriate Key Stage. The design of our curriculum has been developed and refined over the years by successive Maths Leads to meet the changing needs of our school. In previous years, we followed Abacus as a single scheme for the whole school, followed by a period in which we used Maths No Problem for Key Stage 1 and a mixture of schemes for Key Stage 2, and then we had a trial period during 2021 of the Power Maths scheme. Following this trial, we found that none of these approaches offered us the depth of curriculum or opportunity to develop high levels of fluency that our children needed.

In Reception, as the class is part of the Foundation Stage of the National Curriculum, we relate the mathematical aspects of the children's work to the objectives set out in the Early Learning Goals, which underpin the curriculum planning for children aged three to five. We give all the children ample opportunity to develop their understanding of number, measurement, pattern, shape and space through varied activities that allow them to enjoy, explore, practise and talk confidently about mathematics as part of their continuous provision. We use the Number Sense approach to develop fluency, flexibility and good number sense which builds an automaticity of facts, as Fluency Bee which is used in other year groups does not cover Reception.

Key Stages 1 and 2 both follow White Rose as a framework to ensure consistency, progression and coverage through the school, however in Key Stage 1 we have opted to do so through the use of the Primary Stars scheme as we feel this is more aligned with our Concrete-Pictorial-Abstract approach in the way that concepts are introduced through concrete materials and then pictures to represent them before children move on to abstract notation. This scheme is closely linked to White Rose, so consistency of coverage is maintained. Years 1 and 2 also use the Fluency Bee teaching programme in order to build on the foundations laid in Reception with structured, varied and frequent practice.

In Key Stage 2, staff use the White Rose scheme of planning and resources to ensure consistency, progression and coverage. Additional resources to support fluency, problem-solving and reasoning development are accessed via NRICH and NCETM, as well as tools such as MathsBot. We have also recently implemented Gareth Metcalfe's *I See Problem-Solving* resources, and have developed our own series of deepening questions to present to those higher attainers who need to dig deeper into their problem-solving capacities, which are stuck in the backs of maths books for children to access as appropriate. *I See Problem-Solving* is aimed at KS2, but we have developed KS1 and KS2 versions of our own extension questions, called the "Mastery Menu". Pupils make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems and apply their mathematical knowledge to science, computing and other subjects.

At St. Anne's, the majority of pupils move through our curriculum at mostly the same pace, however this is only when their class teachers have judged that their understanding is sufficiently secure for them to be ready to progress to the next stage. When pupils grasp concepts more rapidly and readily than their peers, we offer them further challenge relevant to that area so that they delve into a greater depth of understanding appropriate to their level of attainment rather than rushing onto new content. When pupils struggle to progress, or come to us with gaps in their knowledge, we offer them more opportunities to consolidate their understanding with increased practice, support or intervention as appropriate before they move on. Staff use White Rose guidance found within each unit's Scheme of Learning document to help with this. Short-term planning is done by class teachers (in a format of their choice) using our checklist of 'Teacher expectations in Maths' to ensure all required elements are included. Planning support and resources are provided via the White Rose scheme of work, available on the website.

CONTRIBUTION OF MATHEMATICS TO THE DEVELOPMENT OF SMSC EDUCATION

SPIRITUAL: Developing a logical approach and the ability to recall and reason, along with questioning the way in which the world works promotes the spiritual growth of our pupils. We aim to be enthusiastic about the subject and to use a range of teaching strategies that allow children to be creative or imaginative.

MORAL: The moral development of pupils is evident in much of the curriculum where maths is used in real-life contexts. Pupils are able to apply the skills required to solve various problems and understand how decisions are made dependent upon the outcomes of the problem. We hope to develop an awareness that maths is not strictly limited to problems that result in polarised solutions such as right or wrong, but that deeper understanding can uncover greater nuance and detailed appreciation of the interaction between a solution and its context.

SOCIAL: Using and applying maths involves being able to solve problems. The ability to do this individually or collectively as part of a team or pair when a task requires it is fundamental. Children are encouraged to communicate mathematically when discussing, explaining and presenting ideas, through which they are able to develop their mathematical reasoning skills.

CULTURAL: Mathematics is the universal language of the world. At St Anne's, we aim to develop a realisation that many topics we learn today have travelled across the world and are used internationally, as we take our place in this process of shared learning and progress that has continued for millennia.

INCLUSION

We ensure that all learners make progress and gain positively from each mathematics lesson. Teachers are aware of the differing needs of individuals and support and challenge learners appropriately to their level of attainment. Children who are identified with as having special educational needs will be carefully planned for, with individual programmes drawn up by the class teacher in conjunction with the SENDCO. Appropriate challenge is available to all participants in every lesson, so as to never limit the potential of any child in our school.

ASSESSMENT AND RECORDING

Assessment is an integral and continuous part of the teaching and learning process at St Anne's 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, step-by-step modelling with participation from the children, effective feedback and response in their teaching and marking, and guiding and observing children participating in activities.

Findings from these summary judgements are recorded on an assessment grid of year based objectives using four levels of attainment. These judgements are discussed at termly pupil progress meetings alongside the summative assessment results. Staff have the opportunity to regularly assess and moderate their judgments with a colleague at staff meetings and at least once a year with teachers from another school.

Summative assessment takes the form of more formal methods are used to determine the levels of achievement of children on a termly basis (and more often in Year 6). We use termly assessments as a way of recording children's progress. These test results alongside the teacher summary judgements are analysed termly to determine whether extra intervention or modification to teaching is required. In addition to Statutory End of Key Stage Assessment at year 2 and year 6, other year groups sit an Optional SAT paper. Teachers also have access to White Rose's end of unit checks which provide a more frequent assessment opportunity.

In Year 4, children undergo the Multiplication Tables Check in the summer term, so in order to ensure readiness for this and retention of the fundamental skill of rapidly recalling times tables (and associated multiplication and division facts), Year 4 children take a weekly summative 5-minute times tables progress test which assesses their progress made through explicit teaching of times tables as well as daily "speed tests", where children focus on one times table per week for 2 minutes a day to reinforce their learning as a lesson starter.

RESOURCES

For planning, slides, questions, tasks, etc staff have access to White Rose's resources, as well as a wide variety of online and offline resources including some from NRICH and the NCETM which are kept on our staff shared area. Staff also have both interactive and printable resources available on Mathletics and Purple Mash.

Concrete resources are kept in a central store location and audited annually by the maths lead.

MONITORING AND REVIEW

The monitoring of the standards of children's work and of the quality of teaching in maths is the responsibility of the subject leader. The work of the subject leader also involves supporting colleagues in the teaching of maths, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school.

Signed: 

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