MATHS POLICY

April 2021 – Jo Simon

Rationale

We believe that '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 in most forms of employment. A high-quality mathematics education, therefore, provides a foundation for understanding the world, the ability to reason mathematically, and a sense of enjoyment and curiosity about the subject.' (The National Curriculum in England (DfE) 2013)

Maths is a core subject of the national curriculum and is therefore an essential and integral part of a child's education. It is the study of numbers, patterns and associated relationships using defined literal, numerical and operational symbols. Maths plays a large part in all aspects of our everyday lives and, as a result, children need to be confident and secure in their mathematical abilities at whatever level. In addition, the study of maths, its investigations and logic, gives the child a better insight and understanding of the world about them.

Aims

Through our teaching of maths, we aim to:

- ensure that all pupils become fluent in the fundamentals of Mathematics so that they have conceptual understanding and are able to recall and apply their knowledge rapidly and accurately to problems;
- ensure that all pupils reason mathematically by following a line of enquiry, conjecturing relationships and generalisations and developing an argument, justification or proof using mathematical language;
- ensure that all pupils 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. (The National Curriculum in England (DfE) 2013);
- develop an enthusiasm for and fascination with mathematics;
- increase the confidence of each pupil in mathematics to enable them to apply their knowledge and skills with assurance;
- promote the teaching of numeracy and literacy within all subjects.
- share good practice within the school;
- work with other schools to share good practice in order to improve this policy.

The National Curriculum programmes of study and attainment targets

We base our teaching on the programmes of study for EYFS, KS1 and KS2 and the revised National Curriculum (2014). The Maths No Problem teaching resources are used throughout school from Year 1 – Year 6.

Role of the Subject Leader

The Subject Leader will:

- lead the development of this policy throughout the school;
- work closely with the Principal, the nominated governor and SENCO;
- be accountable for standards in this subject area;
- monitor standards by auditing the subject area; reviewing the scheme of work; monitoring teachers' planning; observing lessons; scrutinising children's work; and discussions with pupils;
- ensure continuity and progression throughout the school;
- devise a subject improvement plan;
- provide guidance and support to all staff;
- provide training for all staff on induction and when the need arises;
- attend appropriate and relevant INSET;
- keep up to date with new developments;
- undertake an annual audit and stock take of resources;
- purchase new resources when required and in preparation for the new academic year;
- manage the subject budget effectively;
- review and monitor;
- annually report to the Governing Body on the success and development of this policy.

Teaching methods

Children will be taught maths using a variety of teaching methods appropriate to the skill or concept being taught and the needs of the children. Direct, class teaching will play an important part in this. Group and partner work, as well as children learning by themselves, are also an integral part of maths teaching.

Children's first steps in mathematics will be of a practical and oral nature through first hand experiences. Recording will come later when the skills of writing are sufficiently developed to allow it; however, all children will be given the opportunity to learn mathematics from practical experiences throughout both KS1 and KS2. This practical work may take the form of contextualised investigations, including role play.

In the Early Years Foundation Stage (EYFS) we relate the mathematical aspects of the children's work to the Development Matters statements and the Early Learning Goals (ELG), as set out in the EYFS profile document. Mathematics development includes providing children with opportunities to practice and improve their skills in counting numbers, calculating simple addition and subtraction problems and to describe shape, space and measures. The profile for mathematics areas of learning are number (ELG11) and shape, space and measures (ELG12). We continually observe and assess children against these areas using their age-related objectives and plan the next steps in their mathematical development. We use 'numberblocks' to support our planning and the supporting documents supplied by the *National Centre for Excellence in the Teaching of Mathematics (NCETM)*.

St Matthews teaches maths through the Singapore maths approach, following the Maths No Problem (MNP) programme. The principal aim is to develop children's knowledge, skills and understanding. During our daily lessons, we encourage children to demonstrate their understanding using a range of visual and written strategies to ensure a rich depth of knowledge.

We try to develop children's understanding from the **concrete** (actual physical manifestation of maths), to the **pictorial** (being able to approach maths using pictures rather than physical resources), and finally, onto the **abstract** (being able to approach mathematics without physical or pictorial resources)

The Maths No Problem approach encourages children to *learn to think mathematically*, as opposed to reciting formulas/ 'tricks' they don't understand.

Each session starts with a problem for the children to explore. The problem is shared and discussed as a class. Children have the chance to use a range of resources to try and solve the problem. They can develop a range of strategies - children are encouraged to know that there are no right or wrong answers, as long as children can reason and explain them. Teachers will then guide and scaffold initial thoughts and add structure. Children will then have the chance to practise and refine their skills using them to complete a range of workbook tasks. Children complete sessions with the chance to share their personal understanding as they journal.

Where appropriate, reinforcement and extension work will also be provided. The children will be taught and encouraged to develop their mental skills and strategies throughout the school. Children should become aware that one reason for studying maths is to acquire a tool that can help to solve problems encountered in everyday life. They will be given opportunities to solve problems using their maths skills. They should also be able to discuss possible solutions and devise their own means of recording results. The children will also be helped to make sense of their experiences, skills and knowledge through discussion and application of their learning to new situations.

How we plan maths

Mathematics is a core subject in the National Curriculum and we ensure the statutory requirements of the programme of study for mathematics is implemented.

National Curriculum expectations are central to the programme we deliver. Maths No Problem (MNP) has been designed to ensure full coverage of the National Curriculum is allowed during the school year. Each session of MNP has been designed to allow children to be understanding over an extended period and apply their knowledge accordingly. Lessons are planned and tasks have been developed by the programme to allow children to show the depth of understanding they have gained.

Teachers have access to the MNP website where expectations for the lessons are provided, question examples are given and suggestions to add further challenge, support and assessment are highlighted. Teachers are then expected to personalise sessions with further questions/challenges that can challenge and support the individual learners in their classes. Class teachers complete post it notes planning (record questioning) in their own personalised textbook. These plans list the specific strategies and key learning that needs to be demonstrated to ensure children are working at the age-related expectation. This will give details of how the lessons are to be organised and where scaffolding will need to be used to ensure all learners are supported and challenged. Textbook/post it note plans are kept by class teachers and are made available throughout sessions.

The daily lesson generally comprises mental skills, exploration, scaffolding/modelling, workbook work, journaling and further challenge. Workbook work and journaling are ordered in a way that is suitable for class teacher and the children in the class. It is essential that all lessons build in an opportunity to enhance skills to a real-life context and this should allow children to reason, use and apply and confirm learning - this is done in every MNP session. We plan using a common format (for long and medium-term planning), which is taken from the revised National Curriculum (2014) and Maths No Problem Teaching Materials for each year group and EYFS. It is built on progression and skills, taught and learnt. Short-term planning is at the professional discretion of individual teachers, but needs to be available for senior management moderation and subject leader monitoring. Additional support is given at staff meetings and Key Stage meetings.

Assessment for Learning

Teachers will assess children's work in mathematics from three aspects (long-term, medium-term and short-term).

Short-term assessments are integral to every lesson. These daily assessments are closely matched to the teaching objectives and help teachers monitor how learning is progressing during the lesson. From these assessments, teachers can adjust their daily plans. Written or verbal feedback is given to help guide children's progress. Children are given regular opportunities to self-assess and review their own work and they are encouraged to make judgments and reflect on their own learning.

There are three key assessment points throughout the year: autumn term, spring term and summer term. Children will complete written tests where they will complete arithmetic and reasoning tests. Teachers will use this and their day to day assessments to decide on the children's end of year outcome.

We make long-term assessments towards the end of the school year, and we use these to assess progress against school and national targets. We can then set targets for the next school year and make a summary of each child's progress before discussing it with parents and carers. We pass this information on to the next teacher at the end of the year, so that s/he can plan for the new school year. We make the long-term assessments with the help of end-of-year tests and teacher assessments. We use the national tests for children in Year 2 and Year 6, plus MNP assessments for children in both Key Stage 1 and 2. We also make annual assessments of children's progress measured against the level descriptions of the National Curriculum relating to ARE which are embedded throughout the Maths No Problem programme. Continuity and progression are ensured by passing whole class records on to the next teacher or stage, along with the records for each individual child. The KS1 and KS2 SATs results, termly assessments for years 3, 4, & 5 and the EYFS profile all provide extra information.

Calculations

Guidelines have been produced to inform and support teachers on how to teach the formal, written methods of calculations in KS2. Most written calculations (where appropriate) should start with the units or digits from the right-hand side. A calculation policy is used throughout school and is shared with parents at parents' evenings. The calculation policy is linked to the Maths No Problem materials. Additional copies are available by request.

Resources for maths

A selection of basic resources relevant to each year group is kept within each classroom. Each teacher has responsibility for the storage and upkeep of this equipment. Specific or general resources are then kept centrally in the maths stockroom. The maths subject leader has overall responsibility for all central equipment.

Mathematics and inclusion

At St Matthew's, mathematics forms part of the school curriculum policy to provide a rich and deep education to all children. Through our mathematics teaching, we provide learning opportunities that enable all pupils to make good progress. MNP provides all learners with suitable support and challenge. At the centre of MNP, is the process of using concrete-pictorial-abstract ways of showing learning. Resources are available for all learners to help see and make links within their understanding. We strive hard to meet the needs of those pupils with special educational needs, those with disabilities, those with special gifts and talents and those learning English as an additional language, and we take all reasonable steps to achieve this. For further details, see separate policies: Special Educational Needs; Disability Discrimination; Gifted and Talented Children; English as an Additional Language (EAL).

When progress falls significantly outside the expected range, the child may have special educational needs. Our assessment process looks at a range of factors – classroom organisation, teaching materials, teaching style and differentiation – so that we can take some additional or different action to enable the child to learn more effectively. Where this is the case, children will have a modified programme of study suited to them as individuals, to build on their own needs.

Individual Education Plans (IEPs) are created for children with special educational needs; this may include, as appropriate, specific targets relating to mathematics.

We enable all pupils to have access to the full range of activities involved in learning mathematics. Where children are to participate in activities outside the classroom. we carry out a risk assessment prior to the activity, to ensure that the activity is safe and appropriate for all pupils.

Parental involvement

Children are given extra maths activities for home that help them to practise key number fluency (i.e. times tables) and recap previous MNP learning.

Teachers meet parents and report to them verbally each term. A full written report is provided for all parents towards the end of the summer term.

Where applicable, parent workshops will be held to share strategies and expectations for children at all ages.

Maths and I.C.T.

I.C.T. is now a fundamental, core skill at all key stages and therefore will be used to support the maths teaching throughout the school. Interactive whiteboards will provide up to date technology to support and enhance the teaching of mathematics. Various computer programmes, specific to each year group or key stages will also support all aspects of the teaching of maths. The school use Numbots in Key Stage 1 and TTRockstars in Key Stage 2 to develop fluency in arithmetic and times tables.

Cross-curricular links

Maths contributes to other learning experiences across many areas of the curriculum and has important links with science, technology, P.E. and geography. This is particularly true when teaching data handling, patterns and logo. The language development within mathematics is of equal importance.

Spirituality

This is promoted through mathematics by exploring the world through numbers, predicting and exploring ideas of time and place and size, seeking and explaining, looking for pattern and order, cause and effect.

Assessment for learning

Teachers will:

- carry out continuous assessment;
- use short-term assessments matched to the teaching objectives to adjust their planning;
- make comments in pupils' books related to the teaching objective;
- carry out medium-term assessments to measure progress against key objectives to adjust planning;
- carry out long-term assessment to assess progress against school and national targets;
- administer national tests and assessment in Y2 and Y6;
- use long-term assessments to help them plan for the next academic year;
- inform parents and carers of their child's progress and targets.

Record-keeping

Records of each pupil's progress will be kept by their teachers and passed on at the end of each year.

At the end of each school year, reports on the child's progress will be sent home to parents. At the end of each key stage the relevant SATS results will also be reported to the parents and the next teacher.

Head teacher:		**Date:**	
Chair of Governing Body:		**Date:**	