



## MATHS POLICY

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### INTRODUCTION

This policy aims to give all members of the school community clear guidance with regard to the rationale, principles, strategies and expectations of maths teaching and learning at St Stephen's C of E Primary School.

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)

### AIMS

#### General

The national curriculum for mathematics 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.

#### Specific

St Stephen's C of E Primary School pupils should:

- have a sense of the size of a number and where it fits into the number system;
- know by heart number facts such as number bonds, multiplication tables, doubles and halves;
- use what they know by heart to figure out related facts mentally;
- calculate accurately and efficiently, both mentally and in writing, drawing on a range of calculation strategies as outlined in St Stephen's Calculation policy 2015;
- make sense of number problems, including non-routine problems, and recognise the operations needed to solve them;
- collect, interpret and represent data;
- recognise, describe and represent shapes and patterns in terms of their properties, location and movement;

- measure quantities including length, area, volume/capacity, angle, temperature, time and mass;
- explain their methods and reasoning using correct mathematical terms;
- judge whether their answers are reasonable and have strategies for checking them where necessary;
- make connections across mathematical ideas to develop fluency, mathematical reasoning and competence; and
- apply their mathematical knowledge to science and other subjects.

We will judge the success of our mathematical teaching and learning by:

- the motivation and interest displayed by our pupils (maths events, surveys);
- KS1 and KS2 SAT results;
- success in meeting individual maths targets;
- data analysis (Pupil Tracker);
- book and planning scrutiny;
- observations of the teaching of mathematics; and
- parental engagement in the learning of maths at home (workshops).

## PRINCIPLES

The principles of St Stephen's C of E Primary School for mathematics are:

- policy and provision are evaluated and reviewed regularly;
- resources of time, people and equipment are planned, budgeted for and detailed when appropriate;
- the governing body of the school discharge their statutory responsibility with regard to mathematics;
- cross curricular links are made where appropriate; and
- planning of mathematics ensures continuity and progression across all year groups and key stages.

## CURRICULUM

At St Stephen's C of E Primary School children are taught the Mathematics curriculum in accordance with the directives of the Hamilton Trust Scheme (linked to Abacus), which reflects the changes to content and pedagogy in the new National Curriculum 2014. The scheme is used to enhance the learning experiences of children to ensure that they are accessing tasks that are of an appropriately challenging level. The teachers follow the objectives mapped out on medium term plans for their year group to ensure coverage. They adapt their teaching to suit the needs of the children in their class, provide sufficient challenge and motivate all pupils through use of additional resources such as investigations and puzzles on weekly (KS2) or fortnightly (KS1) basis.

## PROVISION

Pupils should experience a range of practical and written activities on number, measurement, geometry and statistics. Mathematics is taught for one hour per day in KS1 and KS2. In the Foundation classes mathematics teaching is spread throughout the day.

## EARLY YEARS FOUNDATION STAGE

The early years are critical, and it is now accepted that a playful approach builds a solid foundation for maths learning. Pupils use a variety of media but most of the work is practical. At St Stephen's C of E Primary School, we strive to ensure that children's first experiences of mathematics within school are both positive and practical. During these early years, children are given opportunities to explore the number system, develop mathematical vocabulary through exploration and imitation, learn to represent groups and numbers, and develop early reasoning skills.

Children work towards the following Early Learning Goals:

*Early Learning Goal - Numbers* - Children count reliably with numbers from one to 20, place them in order and say which number is one more or one less than a given number. Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer. They solve problems, including doubling, halving and sharing.

*Early Learning Goal - Shape, space and measures* - Children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. They recognise, create and describe patterns. They explore characteristics of everyday objects and shapes and use mathematical language to describe them.

## KS1 and KS2

The pupils in each year group in KS1 and KS2 are taught in mixed ability classes and are provided with differentiated activities to ensure tasks are set according to their needs. Some facts need to be memorised, others need to be practised but underpinning all of this is the development of mathematical reasoning and understanding through exploration, problem solving and investigation.

The teaching of mathematics at St Stephen's C of E Primary School provides opportunities for group work, paired work, whole class teaching and individual work.

Pupils engage in:

- the development of mental strategies;
- written methods;
- practical work;
- investigational work/problem solving;
- mathematical discussion; and
- consolidation of basic skills and number facts.

Most lessons have the following structure:

- a short mental/oral starter;
- the main teaching;
- opportunities to apply new learning through differentiated activities; and
- plenary activities.

## SPOKEN LANGUAGE

At St Stephen's we strongly believe in the importance of spoken language on pupils' development across the whole curriculum – cognitively, socially and linguistically. The quality and variety of language that pupils hear and speak are key factors in developing their mathematical vocabulary and presenting a mathematical justification. They must be assisted in making their thinking clear to themselves as well as others and teachers should ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions.

## DIFFERENTIATION

In general, teachers plan a core activity for the majority of pupils and adjust the activity to make it appropriate and challenging for more able and less able pupils by the use of teaching assistants; additional resources, extension activities, and challenges; targeted questioning; and open questions.

Our 2014 national curriculum states that “the expectation is that the majority of pupils will move through the programmes of study at broadly the same pace” and that “pupils who grasp concepts rapidly should be challenged through rich and sophisticated problems before any acceleration through new content.”

## SEND

All pupils take part in the daily numeracy lessons. Teachers plan lessons so that all pupils can be included and can make progress. In oral work teachers plan a range of differentiated questions, some targeted at specific pupils. Teachers also ask open questions that allow all children to take part. They use a wide range of visual and kinaesthetic resources to illuminate meaning. During whole class teaching, discreet help is given to particular children where necessary. Those pupils who have Statements of Special Educational Needs or Educational Health Care Plans receive support as indicated in their plans. This additional support can take the form of 1:1 work with an adult, small group work or specific resources to aid learning.

Please see the SEND Information Report for more information on how children with special educational needs are supported at St Stephen's.

## EQUALITIES

We believe that equality at our school should permeate all aspects of school life and it is the responsibility of every member of the school and wider community. We will always strive to ensure equality of access to maths for all pupils irrespective of their gender, ethnicity, disability, religious beliefs/faith tradition, sexual orientation, age or any other of the protected characteristics (Single Equalities Act 2010).

## WRITTEN METHOD OF CALCULATION

We have adopted the 2014 National Curriculum progression in written methods of calculation within our school. Our calculation policy provides guidance on appropriate

calculation methods and progression from EYFS to Year 6 under the following headings: addition, subtraction, multiplication and division.

See Calculation policy for further details.

## MENTAL METHODS OF CALCULATION

Ability to calculate mentally forms the basis of all methods of calculation and gives you a better grasp of how numbers interact. Early practical, oral and mental work provides children with good understanding of how the four operations build on efficient counting strategies and a secure knowledge of place value and number facts. At St Stephen's we test pupils' mental calculations on weekly basis to develop the skills and strategies and give pupils confidence to tackle maths questions with more confidence.

## CROSS-CURRICULAR MATHEMATICS

We believe that pupils should be aware of how the branches of mathematics interconnect with each other and the whole school curriculum; therefore we aim to provide children with a wide variety of tasks to practice and apply concepts they acquire during mathematics sessions. In science, for instance, use of statistics to explore scientific concepts brings in an opportunity to further develop maths skills in the subject.

## ICT

At St Stephen's we believe that Information and Communication Technology can enhance the teaching of Mathematics significantly. Teachers use software and online interactive resources to present information visually, dynamically and interactively, so that children get engaged in their learning and understand concepts more quickly. Computers are stored on each floor and are easily accessible for all teachers and pupils (under supervision); while IPADs are available in the year 6 classroom.

## ASSESSMENT & RECORDING

Assessment is regarded as an integral part of teaching and learning and is a continuous process. The assessment procedures at St Stephen's encompass:

- making ongoing assessments and responding appropriately to pupils during 'day-to-day' teaching - these 'immediate' responses are mainly verbal and are not normally recorded;
- informal assessment takes place continuously and teachers record on focus group sheets names of children who have exceeded/not achieved expectations;
- making observations of children at work and marking their work;
- assessment activities linked to the key objectives. Information is recorded onto the schools tracking system and then used to inform future planning, and to identify children for intervention and support. The Class Teacher, Assessment Leader, Mathematics Leader, SENDCo and Head Teacher keep records of assessments;
- two days are set aside each half term for planned assessment of attainment in the key objectives;
- use of ongoing teacher assessment at the end of each full term to assess a child's attainment using the emerging, developing and secure judgements against the objectives set out in the National Curriculum 2014; and

- statutory Assessment Tasks (SATs) are administered in accordance with the law at the end of KS1 and KS2 - in the EYFS pupils are assessed and the Foundation profile completed throughout the year.

### Assessment for Learning

Assessment for Learning is fundamental to raising standards and enabling children to reach their potential. In Mathematics it takes place daily using a range of strategies such as strategic use of questioning, marking and feedback of work, self-assessment and observing the children interacting with each other during partner talk. This information informs subsequent planning and next steps in teaching and learning. Planning is annotated to demonstrate adaptations and provide feedback about children's individual/group progress.

### Individual Targets

Individual maths targets are set termly and progress towards them is regularly reviewed. The Maths Subject Leader decides on the particular area of mathematics and the teachers then use New National Curriculum 2014 objectives for a particular year group to set relevant targets for all pupils in the class at their level of abilities. Target lessons are taught fortnightly to ensure the pupils have an opportunity to engage in target work in order to meet them and make progress within their year group expectations.

### Responses to pupils' work

At St Stephen's we recognise the importance of responding to children's work, whether orally or in writing. We seek to encourage children by acknowledging positive achievements. This could include praise for use of a viable method even if the end results were incorrect. Children are frequently provided with next steps to support and enhance their understanding and make links between previous and future learning.

See Marking and Feedback Policy for further detail.

## THE ENVIRONMENT & RESOURCES

The school aims to provide a mathematically stimulating environment through displays that promote mathematical thinking and discussion, display of maths vocabulary and of pupils' work that celebrate achievement and by providing a good range of resources for teacher and pupils to use. In every classroom, resources such as number lines, hundred squares, rulers, place value charts and multiplication squares are stored and labelled as appropriate. Pupils are encouraged to choose resources which are relevant to their work, take care of and return them to their right location. There is a maths cupboard where additional and larger maths resources are kept for teachers to bring in when needed.

Pupils should engage in activities from a variety of sources – practical apparatus, worksheets, textbooks and the environment. Through regular and monitored access to computers and iPads they will experience the fascination of mathematical exploration and investigation.

## PARENTAL SUPPORT

At St Stephen's C of E Primary School we encourage parents to be involved by:

- inviting them into school twice yearly to discuss the progress of their child and in the summer term to discuss the yearly report;
- inviting parents to curriculum evenings or circulating information via newsletters when significant changes have been made to the mathematics curriculum;
- sending a termly letter to parents to inform them about the areas being covered in maths for the relevant term;
- distributing leaflets on 'how to support your child with maths at home' and a school calculation policy;
- holding workshops for parents focusing on areas of mathematics.

## INTERVENTION

Interventions are provided to boost children's progression in maths and are tightly planned, with assessments made frequently to ensure progress is being made. Interventions are carried out mostly by our Teaching Assistants, however it is the responsibility of the teacher to decide how it is planned and delivered. Communication is paramount to ensure the intervention is being carried out correctly and effectively.

There are also opportunities for Gifted and Talented children within St Stephen's Primary. Data analysis taken from Pupil Tracker we started to use recently will be used to identify children who require additional support in specific areas.

Interventions are decided at the beginning of each term depending on the needs of each class. They may include Precision Teaching (10–15 minute daily intervention supporting children's understanding and memory of basic maths facts) or small group booster sessions working on place value and calculations.

## HOMEWORK

We recognise the importance of making links between home and school and encourage parental involvement with the learning of mathematics. Weekly maths homework provides opportunities for children to practise and consolidate their skills and knowledge, develop and extend their techniques and strategies and share their mathematical work with their families.

## MONITORING & REVIEW

Monitoring of the standards of children's work and of quality of teaching in mathematics is the responsibility of the Headteacher and link governor supported by the Maths Subject Leader. The work of the 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.

## OUTSIDE AGENCIES

The Maths Subject Leader works in conjunction with The Oval Learning Cluster which provides networking opportunities to discuss mathematics. In addition, the Maths Subject Leader liaises with outside maths consultants as appropriate. Yearly maths events and workshops for able and talented pupils are organised in and out of school providing opportunities for the children to work with other professionals and pupils from other schools.

## REVIEW AND EVALUATION OF THE POLICY

The policy will be reviewed in September 2017 to ensure it is kept in line with any curriculum changes that take place within the school or externally.

Agreed by Governors  
(Chair Signature):

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Policy Due for Review:

September 2017

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