

## Mathematics

### Issue 3 –April 2020

Issue No.	Date	Approved	Signature	Revision Notes	Date Next Review
1	January 2016			New	Spring 2019
2	January 2019			Revised	Spring 2022
3	April 2020			Revised	Spring 2022

## INTRODUCTION

At Sunnyside Spencer Academy, we recognise that Mathematics is a universal communication which all children and adults need to be successful in life outside of education. Alongside this, we also recognise that becoming fluent and articulate in Mathematics is also a key to success. It is a very basic expectation of employers that as young adults they can calculate competently and any young adult who cannot is at a severe disadvantage, no matter what the job. The long-term benefits of mastering basic Mathematical skills are immeasurable. In order for our pupils to SHINE we also acknowledge that children need to enjoy learning Mathematics and become independent in accessing tools to support them on their learning journey.

## PURPOSE OF STUDY

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.

## AIMS

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
- 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.

Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programmes of study are, by necessity, organised into apparently distinct domains, but pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge to Science and other subjects.

The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material

should consolidate their understanding, including through additional practice, before moving on.

## **STATUTORY REQUIREMENTS**

Statutory requirements for the teaching and learning of Mathematics are laid out in the National Curriculum Mathematics Document (2014) and in the Mathematics sections of the Statutory Framework for the Early Years Foundation Stage (2012). In the Foundation Stage (Reception) children are given opportunities to:

- Communicate mathematically through Maths Talk
- Build their competency in learning and applying numbers
- Recognise and explore shapes, patterns and measurements

At Key Stage One (Years 1 and 2) children learn to develop their confidence in written and mental fluency with number as well as begin to describe, compare, manipulate and sort shapes and measurements according to their properties. By the end of KS1 children can also write, spell and talk using mathematical language. This in turn aids them to solve everyday problems.

At Key Stage Two (Years 3-6) children learn to become increasingly fluent in their mental mathematics as well as build on their formal written methods. They continue to talk, write and spell Mathematical language at an increasingly complex level. By the end of KS2 children are working with larger numbers and can securely apply all four operations using formal methods. Pupils can also confidently connect areas of Mathematics to solve in depth problems.

## **SUBJECT ORGANISATION AND MANAGEMENT**

Mathematics is taught throughout the school on a daily basis. We have adopted the Maths Mastery approach which works on the basis that no child is left behind and we all learn at the same pace. The fundamentals of using the concrete, pictorial and abstract methods in all of our learning gives the children the depth of understanding in Mathematics. We use the 'Power Maths' scheme of work, this provides us and the children with a clear structure to ensure all children progress at broadly the same pace.

Interventions are taught for all year groups. These provide an extra opportunity for those who have struggled to consolidate their learning before moving on.

Sunnyside Spencer Academy runs a whole school Times Table challenge which requires each child to master the relevant times tables for their key stage. This is supported by the use of Times Table Rockstars. Children are required to recall their times tables, in order and randomised, as well as state the inverse calculation. A tracking sheet is available in each classroom which allows the children to check their progress in the challenge and identify independently their own knowledge gaps.

Opportunities to develop the pupils' Mathematical skills are also central within cross-curricular topic work, providing a broad and balanced curriculum across all stages.

## **APPROACHES TO SPEAKING AND LISTENING and ENRICHMENT OPPORTUNITIES**

At Sunnyside we recognise the need for all pupils to speak and write Mathematical concepts/ideas. It is our school policy to encourage children to partake in *Mastery Maths Talk*. Each lesson involves 'maths talk' which provides opportunities for the children to 'prove it, use it, explain it or convince me' to their partners or the teachers. This is evidenced on their toolkits within their books.

Each week, classes take part in a 'Big Solve' challenge that provide children opportunity to practice skills previously taught and interrupting the forgetting.

Children are also provided with weekly Mathematics Challenges which allows them to use their prior maths knowledge and skills to solve problems that can occur in the world outside of school.

We currently have two Maths Leaders in each year group who are responsible for encouraging positive attitudes towards Mathematics and supporting learning within the classroom. This support includes running the Times Table Challenge alongside the class teacher and helping with specific Mathematics celebration events e.g. Number Day.

We celebrate World Maths Day, Number Day and Pie Day yearly, providing pupils with a further opportunity to develop their using and applying skills in a safe and fun environment. These also often have a cross-curricular link.

### **PLANNING**

All planning should include: clear learning objectives and differentiated learning outcomes. Every activity in every lesson is prepared thoroughly and has a very clear purpose. The teacher explains this at the beginning so that the pupils understand what they are learning and why.

### **CROSS-CURRICULAR OPPORTUNITIES**

Teachers seek to take advantage of opportunities to make cross-curricular links. They plan for pupils to practise and apply the skills, knowledge and understanding acquired through Mathematics lessons to other areas of the curriculum.

### **THE USE OF ICT**

We recognise the important role ICT has to play in our school in the development of Mathematic skills. ICT is used to enhance the teaching of Mathematics and to give all children the opportunity to develop their individual maths skills. iPads, netbooks, laptops, microphones and visualiser APPs are just some examples of the equipment used to support children in making progress in teaching and learning.

### **ACHIEVEMENT IN OUR SCHOOL:**

Assessing and tracking progress - Work will be assessed in line with the Assessment Policy. All National Statutory Assessments are administered in accordance with Government legislation.

Mathematics standardisation and moderation opportunities within year groups, cross-phase and alongside other schools are provided throughout the academic year.

Children complete summative assessments, half termly, using the PUMA tests provided by Hodder Education. This ensures that we track progress through the year providing us with opportunities to address any further mis-conceptions that have arisen.

### Target Setting

All pupils from FS2 – KS2 are given personalised Mathematics targets. These are specific to meet the individual learning needs of the child. Progress towards the children meeting their target is regularly monitored, shared and celebrated with each child. Progress meetings happen each week to ensure that interventions are planned for those children who may need extra support.

### Feedback and marking - Work will be assessed in line with the Marking Policy.

At Sunnyside Spencer Academy marking is a regular means of communication with pupils about their individual progress; it should demonstrate to children that their efforts are valued and be specific in referring to the learning objective and success criteria of the lesson. Suggestions for improvement should inform the next steps in their learning and time must be given to pupils to make improvements. Opportunities for pupils to self-assess / peer-assess their work against the success criteria are to be encouraged.

### **INCLUSION**

We aim to provide for all children so that they achieve as highly as they can in English according to their individual abilities. We will identify which pupils or groups of pupils are under-achieving and take steps to improve their attainment through a catch-up programme or targeted intervention support. Gifted children will be identified and suitable learning challenges provided.

### Additional support for children new to the country (English as an Additional Language)

To support pupils who have recently started English education we provide additional language support, physical resources and pictorial representations.

### **EQUAL OPPORTUNITIES**

Sunnyside Spencer Academy has universal ambitions for every child, whatever their background or circumstances. Children learn and thrive when they are healthy, safe and engaged. In order to engage all children, cultural diversity, home languages, gender and religious beliefs are all celebrated. Our curriculum includes a wide range of texts and other resources which represent the diversity and backgrounds of all our children. We believe in 'valuing what the child brings to school' and recognise the importance of supporting a child's first language, not only to foster self-esteem, but to assist in the learning of English.

### **PARENTS, CARERS AND COMMUNITY INVOLVEMENT**

We aim to involve parents directly in the life of the school, and thus in the development of children's skills, knowledge and understanding in Mathematics. Parents are encouraged to support their children with learning their times tables and completing regular Maths homework. Parents are also regularly invited into school to watch their child participate in their learning.

There are opportunities each term when parents can discuss their children's progress with their teacher. Termly curriculum letters and meetings provide

information about the Mathematics curriculum and how parents can support their children. Mathematics workshops are held throughout each academic year to inform parents of ways they can support their child's learning at home; staff interpreters are available at these meetings to ensure all parents are able to access the information. Letters/invitations sent home to parents are also translated for our EAL parents.

### **LEADERSHIP AND MANAGEMENT & ROLE OF SUBJECT LEADER**

The school's shared vision is that every pupil learns to calculate quickly and effectively as well as reason mathematically. The Head Teacher, Mathematics leaders and SLT work with all the staff to ensure that this happens. In particular, the Head Teacher works closely with the Maths leaders to monitor the quality of teaching and to provide coaching for staff who need it.

The Maths Leader with support from the SLT is responsible for improving the standards of teaching and learning in Mathematics through:

- monitoring and evaluating Mathematics:-
- pupil progress
- provision of Mathematics
- the quality of the Learning Environment
- taking the lead in policy development
- auditing and supporting colleagues in their CPD through demonstration, coaching, monitoring and external training
- purchasing and organising resources
- keeping up to date with recent Mathematics developments

This policy should be read in conjunction with the following school policies:

- Teaching and Learning Policy
- Assessment Policy
- Marking Policy
- Special Educational Needs Policy
- ICT Policy
- Equal Opportunities Policy
- Health and Safety Policy
- Continuing Professional Development Policy

This policy will be reviewed every three years or in the light of changes to legal requirements.