



Maths POLICY

Date
12/07/2023

Introduction

This document is a statement of the aims, principles and strategies for the teaching and learning of Mathematics at Scott Primary School. Mathematics is a core subject and this policy has been written in accordance with its statutory requirements.

All pupils can achieve in mathematics! At Scott Primary School, it is our belief that pupils are not learning to be mathematicians but that they **are** mathematicians.

'Mathematics is a creative and highly inter-connected discipline...a high-quality mathematics education should provide 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.' (National Curriculum for Mathematics, 2014)

Intent

At Scott Primary School we encourage all students to believe in themselves and believe that everyone can reach their full potential with hard work and commitment in Maths. We are committed to fostering an enthusiasm for maths where mistakes are valuable learning tools. We believe Maths is about creativity and making sense so opportunities are carefully planned to ensure children have the chance to visualise patterns, create solutions and discuss methods. We enable connections to be developed between the maths we learn in school and its real life application of mathematical skills for life and represent maths in different ways. Learning is enhanced by the exploration of mathematical concepts in a range of engaging, purposeful experiences; helping children to become fluent, determined mathematicians, who can confidently explain their understanding and solve problems. Maths at Scott Primary is truly about learning not performing and a growth mind-set is at the heart of our curriculum.

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.

Aims

We aim to teach Maths in a way that:

- delivers Maths in line with new National Curriculum guidelines
- creates a lively, exciting and stimulating environment
- promotes the concept that acquiring Maths knowledge and skills provides the foundation for understanding the world around the children
- develops mental strategies
- encourages children to use mathematical vocabulary to reason and explain
- allows time for partner talk in order to stimulate and develop a curiosity for Maths
- challenges children to stretch themselves and take risks in their learning
- ensures children in Key Stage 1 are secure in their understanding of number and number relationships

British Values within Maths

Democracy - Pupils take into account the views of others and learn about democracy through voting when

collecting data to analyse.

Rule of Law - Pupils follow class rules safely during tasks and activities to benefit everyone, as well as understanding the consequences if rules are ignored.

Individual Liberty - Pupils work within boundaries to make a safe and personal choice from a given selection during practical activities.

Mutual Respect - Pupils behave appropriately, allowing everyone involved the opportunity to work to the best of their ability. Also, they take turns, sharing equipment, reviewing each other's work respectfully and working collaboratively on projects whilst helping others

Tolerance of those from other faiths and religions - Pupils use Maths to learn about different faiths and cultures around the world. For example, looking at patterns and shapes within Islam and Hindu religions, studying Tangrams etc.

Implementation

At Scott Primary School, we are committed to providing a motivating, challenging and comprehensive maths curriculum that is accessible to all and links the use of mathematics across a range of subjects, adding meaning to the learning of maths. Our whole school approach to the teaching and learning of maths involves the following;

- Our maths planning is largely based on Schemes of Learning from White Rose Maths and enhanced by a wide range of resources. This ensures a progressive and thorough curriculum in every year group. Teachers know which objectives must be taught and assessed in each year group and can follow progressive small steps to ensure pupils have a comprehensive understanding of maths.

- Lessons follow a given structure across the school:

1. LO/SC for the session
2. In focus – previous learning linked to small step for the session
3. High quality teacher input
4. Guided Practise
5. High quality teacher input
6. Independent/further Guided Practise
7. Review of the session and Application task

- Teachers are encouraged to plan in Powerpoint format, creating slides for each 'small step' with teaching points and activities to be completed. This format ensures evaluation of each lesson and subsequent lessons are adapted accordingly.

- WRM (White Rose Maths) promotes kinaesthetic learning to ensure children acquire fluency of skills by introducing concepts in a practical/concrete way to progress to pictorial then abstract (C-P-A).

- Teachers deliver one curriculum for all, providing opportunities to stay together and to work through new content as a whole group. Teachers teach the whole class, allow pupils time to practise and bring the class back together to move on. Differentiated learning is provided through a selection of tasks to consolidate fluency, use skills to solve problems or use skills and reasoning skills to solve higher-level challenge problems. Teachers should use their professional judgement to determine the activities, timing and organisation in each lesson in order to suit the teaching objectives and ensure children understand each small step.

- For pupils who may struggle or possibly 'fall behind' with parts of the curriculum, in class support is provided on a daily basis. Additionally, intervention and consolidation is provided in the afternoon or lunchtime to ensure they are ready for the next lesson. For SEN pupils (extreme) a separate curriculum may be more appropriate.

- Throughout KS1 and KS2, pupils have 4 maths lessons. In Early Years, pupils have 4 maths mornings each week, enabling the maths lesson to continue throughout the morning to ensure all pupils receive quality adult input and also opportunities to practise and consolidate their knowledge through a range of planned, child initiated activities. Years 1/2/3/4 have counting time and times table practise 3 times a week and Years 5/6 have arithmetic sessions once a week.

- Rolling Numbers songs are practised from EYFS to Y6 to embed fluency with tables.

- EYFS and KS1 participate in the Mastering Number programme completing 10 mins of number sense activities every day.

- KS2 complete an extra session of basic skills/fluency time/number talks in PM sessions x3 weekly.

- The teaching of mathematics at Scott Primary School promotes the use of mathematical vocabulary through encouraging children to explain their thinking, strategies and mistakes during lessons to embed understanding and to support peer on peer learning as children learn well from peers.
- During lessons, we encourage children to self-mark and teachers use live marking using providing immediate feedback during the session and also allowing for answers, strategies and mistakes to be discussed. This provides children with immediate feedback and time to reflect on their learning. Mistakes are discussed and correction time given as part of a lesson or during the weekly conferencing time. Children respond well to this and learn well from their mistakes. We see assessment as an integral part of the teaching process and strive to make our assessment purposeful, allowing us to match the correct level of work to the needs of the pupils, thus benefiting the pupils and ensuring confidence and progress.
- WRM planning is taught in blocks. Prior to each block, children complete a pre-assessment and then, at the end of the block, a post assessment. This is a clear way to measure short-term progress. Objectives for each block are shared and discussed with the children during the block. This ensures children know their learning targets.
- Targets for Maths are recorded at the front of their books and reviewed every fortnight. These link to fluency objectives for the year.
- Challenge questions are given to children to encourage them to delve deeper into the maths learning from the lesson every other week.
- The national curriculum for mathematics reflects the importance of spoken language in 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, argument or proof. Children need to learn to explain their thinking clearly and teachers should ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions.

Impact

Our successful approach to the teaching and learning of maths, results in a fun and engaging curriculum that embeds understanding and knowledge through hands on, practical activities. Introductions to concepts using concrete materials and practical activities supports learning through memorable activities and 'games' which children can recall at a later date, relating the learning to new situations. Children are encouraged to share their misconceptions and misunderstandings and become adept in using appropriate vocabulary in doing so. The inclusion of open dialogue to discuss and explain mathematical thinking also strengthens the use and understanding of mathematical language along with ensuring children can explain, justify and evidence their thinking. Connecting maths across the curriculum highlights how maths relates to life. We regularly use and highlight our use of maths in science investigations, collecting, recording and presenting data and geography field trips collecting and categorising resources from the world around us and taking measurements, e.g. Rivers KS2. Computing also highlights the real use of maths with statistics and data collection and analysis while measuring and position and direction are essential skills to programme toys and VEX Robotics (STEM). Special weeks timetabled throughout the year also celebrate mathematical thinking, such as Science Week.

Teaching and Learning

EYFS

Maths is separated into two areas: 'Number' and 'Numerical Patterns'. Children are taught to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers. By providing frequent and varied opportunities to build and apply this understanding - such as using manipulatives, including small pebbles and tens frames for organising counting - children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built. In addition, our maths curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures. We aim to enable the children to develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes!

KS1

The principal focus of mathematics teaching in key stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This involves working with numerals, words and the four operations, including with practical resources. At this stage, pupils develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching involves using a range of measures to describe and compare different quantities such as length, mass,

capacity/volume, time and money. Pupils read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

By the end of year 2, we aim for all pupils to know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency.

KS2

The principal focus of mathematics teaching in **lower** key stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value, to develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers. At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching also ensures that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. Pupils use measuring instruments with increasing accuracy and make connections between measure and number. Pupils read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

By the end of year 4, we aim for all pupils to have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work.

The principal focus of mathematics teaching in **upper** key stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This develops the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio. At this stage, pupils develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures consolidates and extends knowledge developed in number. Teaching ensures that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them. Pupils should read, spell and pronounce mathematical vocabulary correctly.

By the end of year 6, we aim for all pupils to be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages.

Organisation, Planning and Resources.

- Each class has a general bank of resources for day-to-day maths lessons. EYFS classrooms have a wide range of counting equipment for children to explore and use in their learning and play. Further shared resources are stored in the Maths resource cupboards located in KS1 and KS2 areas for staff to access.
- Each classroom has a maths 'working wall' showing examples of the topic currently being covered and a permanent display of mathematical symbols, numbers, times tables and vocabulary appropriate to the age range.
- Each classroom is equipped with an Clevertouch Screen and have access to laptops and Ipads to enhance mathematical learning (Timestable Rockstars).
- Additional resources are available in school to support children's learning further, e.g specific teaching programmes, (Power of 2)
- Online programmes (TTR, MyMaths) are used to enhance learning and provide motivational tasks and homework activities.

Homework

KS1 children have access to Numbots and are expected to complete for 10mins daily.

KS2 children are expected to alternate MyMaths and paper based homework fortnightly.

Years 3 and 4 also have 10 xtables to complete on their paper based homework each week.

KS2 children are also expected to complete TTRockstars 10mins daily.

Times tables

Effective understanding and recall of times tables is the foundation of most of the mathematics children will do at primary school and the mathematics curriculum involves children being fluent in number skills.

Our times tables scheme includes inverse operations, a range of representations and problem solving, which are all vital skills in mathematics. We also use Rolling Numbers songs across the school to embed multiplicative fluency.

Assessment

Teachers use a pre-assessment and end of block assessment to inform their teaching during individual WhiteRose units. At the end of each term, children complete an end of term assessment, assessing all the blocks taught over the term. This assesses long-term progress and enables teachers to assess the children against age related expectations. Termly assessments are recorded in Target Tracker, our whole school assessment system, as Year group below, working towards, secure or greater depth. Some children are working below their year group expectations and this is recorded accordingly.

In Early Years, pupils are assessed throughout the year, and it is determined if they are working 'On Track' or 'Not on Track'. Children should meet the Early Learning Goals (ELG's) by the end of the year.

Each half term, the maths lead analyses the data for achievement across the school to identify the percentage of those working at expected, above expected and below expected. This enables SLT to identify groups of pupils who are at risk of underachieving, in which case, intervention strategies, programmes and support are implemented to support learning.

Performance Indicators

Performance Indicators, which are the criteria for success of the school's mathematics policy at Scott Primary School, are:

- Early Years Foundation Profile (Statutory Assessment)
- KS1 results (Statutory Assessment)
- KS2 results (Statutory Assessment)
- Target Tracker data analysis (using data drop information every half term)
- Pupil voice (enjoyment of maths and their ability to talk confidently about what they are doing)

Parental Involvement.

At Scott Primary School we encourage parents to be involved by:

- Inviting them into school to participate in maths workshops. To be informed about the up to date objectives, methods and strategies we use and to work with their child on a range of activities. Copies of the presentations and notes are sent home for parents who are unable to attend.
- Inviting them to parents' evening each term to discuss the progress of their child.
- Providing weekly homework to consolidate classroom learning to inform parents of their children's learning.
- Sending home Knowledge Organisers at the start of each unit on Class Dojo.

Role of Subject Leader

The Mathematics Subject Leader monitors standards of planning and teaching and carries out scrutinies of children's work and teachers' planning. Support is given, if necessary, to ensure all staff are adhering to the agreed policy and planning format. Findings from monitoring are discussed with the Senior Leadership Team and shared with teaching staff as appropriate.

Equal Opportunities, Inclusion, Special Educational Needs and Disabilities (SEND)

We incorporate mathematics into a wide range of cross curricular subjects and seek to take advantage of multicultural aspects of mathematics e.g. Islamic patterns in RE/Patterns using shapes in Diwali.

All children have equal access to the curriculum regardless of race, social circumstance or gender. This is monitored by analysing pupil performance throughout the school to ensure that there is no disparity between groups.

Teachers ensure that VAK (Visual, Auditory and Kinesthetic) learning styles are acknowledged and opportunities for all learners to use their preferred style are provided. HLTA support is given to groups of identified children both in and out of class. Individual Educational Plans are used to address specific areas of weakness and achievable targets are set in order to help the child make progress.

We are committed to giving all our children every opportunity to achieve the highest of standards. We do this by taking account of pupils' varied life experiences and needs. We offer a broad and balanced curriculum and have high expectations for all children. The Inclusion Policy helps to ensure that Scott Primary School promotes the individuality of all of our children, irrespective of ethnicity, attainment, age, disability, gender or background.

Our school aims to be an inclusive school. We actively seek to remove the barriers to learning and participation that can hinder or exclude pupils. We make this a reality through the attention we pay to the different individual and groups of children within our school to ensure minimal risk of underachievement.

The Governing Body

A governor responsible for mathematics is identified from the governing body. Governors are invited to

attend any Maths workshops or training days. The subject leader and the nominated governor meet termly for a monitoring meeting.

S.Worrall
Maths Lead
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