



# Maths Policy

## 2020

ST. STEPHEN'S C.E. PRIMARY SCHOOL  
Uxbridge Road, Shepherds Bush, London W12 8LH



## Rationale

At St Stephen's CE Primary School, we aim to ensure that all of our children are confident and fluent in their knowledge of place value and number as without this, children are unable to progress in their mathematical learning and understanding. We believe in the use of concrete resources and models to support the children's conceptual understanding of number. Furthermore, we recognise the importance of using pictures and images such as number lines, dienes and 100 squares to support mental imagery. Developing mental calculation strategies is the foundation for children to be able to progress to using formal, written calculation methods; therefore we encourage and support the children in their use of mental jottings and informal calculation methods before they have the security in their knowledge of number to progress to formal efficient calculation methods.

We encourage children to talk about numbers and their understanding of number. We always encourage the children to try to explain their reasoning (using the correct mathematical vocabulary) and spend time discussing misconceptions, when they occur; this is how children learn most effectively. We also try to put our mathematical teaching into a context to help to extend learning.

In every classroom, mathematical vocabulary is on display, as too are numbers for the children to explore or respond to in a variety of ways. Mathematics is a core subject and as such is given a very high value in the school. Children enjoy mathematics and are keen to learn and progress. We run essential maths skills sessions in class, to develop mathematical fluency; this is an opportunity for children to rehearse mathematical skills and concepts such as number bonds, multiples and times tables. We also subscribe to a mathematics programme (White Rose Maths), which all of the children have access to both inside and outside of school – this is aimed at supporting the children's mental calculation skills.

We have clear and transparent steps in place to ensure that children are able to progress through their learning of the four main mathematical operations (addition, subtraction, multiplication and division) in line with the programmes of study taken from the revised National Curriculum for Mathematics (2014).

## Aims & Objectives

During their time at St Stephen's, we aim to ensure that the children learn:

- Factual mathematical knowledge - I know that...
- Procedural mathematical knowledge – I know how ...
- Conceptual mathematical knowledge – I know why ...

All three strands are extremely important; however at Stephen's we understand that the conceptual knowledge underpins both factual and procedural knowledge and therefore we are continually striving to create opportunities within our maths teaching for children to



demonstrate their conceptual knowledge through problem solving activities and mathematical discussions.

### We also aim

- To ensure consistency and progression in our approach to calculation.
- To ensure that children develop an efficient, reliable, formal written method of calculation for all operations.
- To ensure that children can use these methods accurately with confidence and understanding.

### Approaches to Teaching and Learning

**Concrete representation**— a pupil is first introduced to an idea or skill by acting it out with real objects. This is a ‘hands on’ component using real objects and is a foundation for conceptual understanding.

**Pictorial representation** – a pupil has sufficiently understood the ‘hands on’ experiences performed and can now relate them to representations, such as a diagram or picture of the problem.

**Abstract representation**—a pupil is now capable of representing problems by using mathematical notation, for example  $12 \times 2 = 24$ .

It is important that conceptual understanding, supported by the use of representation, is secure for all procedures. Reinforcement is achieved by going back and forth between these representations.

### Assessment

#### **Assessment for Learning:**

Children receive effective feedback through teacher assessment, both orally and through written feedback. Common misconceptions are addressed within the teaching sequence before progression to further depth. At the end of the lesson, the children review their work and self and peer assessment are used at least twice a week in key stage two.

#### **Formative Assessment:**

Short term assessment is a feature of each lesson. Observations and careful questioning enable teachers to adjust lessons and brief other adults in the class if necessary. At the end of each blocked unit of work, the children complete the carefully aligned White Rose Maths ‘End of Unit Assessment’. The outcome of this is used by the teacher to ensure that any identified gaps in understanding can be addressed before the next unit is taught. Each child’s score are is inputted on a class document, which provides an overview of achievement in each specific area within the programme of study. This also informs dialogue



with parents and carers during open evenings, as well as the judgements made at the end of the term as to the extent that each child has demonstrated mastery of each 'fundamental' objective.

### **Summative Assessment:**

Teachers administer a termly arithmetic paper and reasoning and problem-solving paper, which specifically links to the coverage for that term. The results of these papers are used to identify children's ongoing target areas, which are communicated to the children, as well as to parents and carers at Parents Evening. They are also used alongside the end of unit assessments and outcomes of work, to inform the whole school tracking of attainment and progress for each child in line with each 'fundamental' objective. Assessment data in maths is reviewed throughout the year to inform interventions and to ensure that provision remains well-informed to enable optimum progress and achievement. End of year data is used to measure the extent to which attainment gaps for individuals and identified groups of learners are being closed. This data is used to inform whole school and subject development priorities for the next school year.

### **Planning and resources**

The use of Mathematics resources is integral to the concrete – pictorial – abstract approach and thus planned into teaching and learning. The school has a wide variety of good quality equipment and resources, both tangible and ICT based, to support our learning and teaching. These resources are used by our teachers and children in a number of ways including:

- Demonstrating or modelling an idea, an operation or method of calculation. Resources for this purpose would include: a number line; place value cards; dienes; place value counters and grids; money or coins; measuring equipment for capacity, mass and length; 5 bead strings; the interactive whiteboards and related software; 3D shapes and/or nets; Numicon and related resources and software; multilink cubes; clocks; protractors; calculators; dice; number and fractions' fans; individual whiteboards and pens; and 2D shapes and pattern blocks, amongst other things
- Enabling children to use a calculation strategy or method that they could not do without help, by using any of the above or other resources as required

### **Organisation**

The school has implemented a blocked curriculum approach to the teaching of Mathematics. This ensures that children are able to focus for longer on each specific area of Maths and develop a more secure understanding over time. This approach is also designed to enable children to progress to a greater depth of understanding.

Subsequent blocks continue to consolidate previous learning so that the children continually practise key skills and are able to recognise how different aspects of Maths are linked. For example, when children have completed a block which has enabled them to master the



multiplication of two-digit numbers, a subsequent block on area and shape might provide opportunities to use this understanding when calculating the area of shapes with 2-digit length and width dimensions.

### **Early Years and Foundation Stage (EYFS)**

Children in Nursery have short Mathematics teaching sessions, during which time they begin to develop their understanding of simple mathematical concepts such as counting to 10, developing mathematical language, looking at quantity and working with basic 2D and 3D shapes. Children are taught these concepts using physical resources, pictorial resources, songs, games and role-play. There is no focus activity linked to these sessions.

Reception work with the 'Development Matters, 2012' guidance document alongside 'Target Tracker'. Through the incorporation of practical and engaging activities and the use of stories, physical resources, pictorial resources, games, role-play, music and an enabling environment the children are empowered to develop the key principles of Mastery within Mathematics including counting to 20, maintaining 1 to 1 correspondence, simple addition and subtraction facts, to recognise and describe simple 2d and 3d shapes. Through whole class, small group and 1:1 teachings, as well as frequent and relative 'Math's meetings', the children are encouraged to become enthusiastic and inquisitive mathematicians. Regular observations and formative and summative assessments help to ensure that all of the children needs are identified and supported.

Within the Early Year and Foundation Stage, we recognise the importance of play-based learning and therefore encourage children to develop their understanding during their play. Such opportunities are continuously provided in both the inside and outside environment.

### **Key Stage One and Key Stage Two**

Key Stage One and Two follow White Rose Maths alongside the national curriculum. This allows us to follow a concrete, pictorial and abstract method. Both the concrete and pictorial methods give the children confidence when moving onto the abstract especially when they find concepts difficult.

### **Homework**

Children are able to complete set homework activities online every week. This has been demonstrated in class with time allowed for children to practise using Mathletics. A trouble shooting workshop was held on 29<sup>th</sup> October for those needed further help.

### **Inclusion**

There is differentiation in the content taught along with differentiation through the questioning and scaffolding individual children receive in class. Higher attainer's are



challenged through more demanding problems, which deepen their knowledge of the same content before acceleration onto new content. Children's difficulties and misconceptions are identified through immediate formative assessment and addressed with rapid intervention – commonly through individual or small group support.

If a child's needs are best met by following an alternative plan, including coverage of the content from a previous year, this will be overseen by the SENDCo, in collaboration with the class teacher. Specific arrangements for the provision of children with SEND will be communicated to parents and carers during SEND reviews.

### **Mathematical Language**

The 2014 National Curriculum is explicit in articulating the importance of children using the correct mathematical language as a central part of their learning (reasoning). Indeed, in certain year groups, the non-statutory guidance highlights the requirement for children to extend their language around certain concepts. It is therefore essential that teaching using the strategies outlined in this policy is accompanied by the use of appropriate and precise mathematical vocabulary. New vocabulary should be introduced in a suitable context (for example, with relevant real objects, apparatus, pictures or diagrams) and explained carefully. High expectations of the mathematical language used are essential, with teachers only accepting what is correct.

### **Enrichment opportunities**

At St Stephen's, we offer a wide range of enrichment opportunities to reinforce, support and develop Maths skills and appreciation throughout the school.



