



# **Brunswick Park** Primary School

*Learning for living through Respect, Support and Challenge*

## **Mathematics Policy**

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**

To develop the skills of numeracy in our children so that they are efficient and confident in their approach to mathematics in a wide range of contexts. It is our aim to ensure that all pupils are provided with interesting and challenging tasks which explore the Maths Mastery approach that enable them to achieve standards commensurate with their abilities and potential.

We aim to develop in all children:

- a positive attitude towards mathematics.
- competence and confidence in mathematical language, knowledge, concepts and skills.
- an ability to solve problems, to reason, to think logically and to work systematically and accurately.
- initiative and an ability to work both independently and in cooperation with others.
- an ability to communicate mathematics through Concrete, Pictorial and Abstract representations.
- an ability to use and apply mathematics across the curriculum and in real life.
- an understanding of mathematics through a process of enquiry and investigation.

## **BARRIERS TO PROGRESS**

Following the worldwide pandemic, gaps have developed in key areas of knowledge across the school. To counteract this, Brunswick Park:

- Used the Ready To Progress objectives, identified by previous teachers, to secure knowledge
- Revival of Times Table Rockstars has been implemented from Year 2 to Year 6 (Year 1 to begin in spring term)
- High quality interventions and small targeted group teaching in Year 6. This will move to Year 5 in the summer term
- Linked to the school's oracy initiative, key maths vocabulary remains a priority and the use of full sentence answers, both orally and in workbooks are an expectation
  - Training of Support Staff is ongoing to ensure confidence in the Maths Mastery strategies
  - Training of Teaching Staff to continue to develop further the use of key Maths Mastery principles
  - Parent workshops are delivered to engage and support parental understanding of Brunswick Park's maths journey

## **TEACHING AND LEARNING**

A range of skills linked to the Maths Mastery approach, in teaching and learning, will be adopted when teaching mathematics across the school regardless of the age, ability and size of the group of pupils in the class. However, a number of key principles will always be adopted:

- Pupils will be given regular opportunities to develop their mathematical reasoning skills, applying their knowledge and understanding to a range of contexts and different problem-solving activities (see below in relation to planning)
- Learning activities will be designed to take into account the abilities and prior knowledge of each pupil and be based on accurate and careful teacher assessment
- Pupils will have access to a range of practical and visual resources to support their Concrete, Pictorial and Abstract understanding of mathematics
- Delivery should include direct teaching and interactive oral work with the whole class and groups. The use of key mathematical vocabulary and Stem Sentences should be embedded in all lessons
- There will be an emphasis on fluency through mental maths activities and mental oral starters.
- Classroom organisation will facilitate independent learning and the independent selection of concrete resources.
- Opportunities will be given to develop children's confidence in questioning, investigation and recording skills.

- Children will be able to work confidently, independently and on group projects.
- Working walls and visual displays will be updated regularly and used effectively to support pupil's learning
- Where appropriate, pupils will be encouraged to work on squared paper. Mathematics will be taught daily through a dedicated mathematics lesson, which should last approximately 45 to 50 minutes in KS1 and KS2. A typical lesson may well consist of a recap of previous learning (5 mins), the main teaching activity (10-20 mins), an introduction to appropriate reasoning (5 mins) and a plenary (5 mins). However, the lesson structure and group organisation is flexible and should be adapted where necessary to the needs and prior learning of the pupils. For example, where there is a range of abilities, direct teaching may not involve the whole class at the same time. The teacher may choose to work with selected groups at different times, while others work independently, to ensure that all pupils are appropriately challenged throughout the lesson.

## PLANNING AND CURRICULUM ORGANISATION

The school's Maths curriculum is based on the programmes of study for Maths which form part of 2014 National Curriculum. Teachers in Year 6 use the Local Authority's scheme of work for mathematics as the basis for their medium-term plans which breaks down units of work into a sequence of weekly learning objectives and activities. EYFS to Y5 use White Rose Maths resources which may be supplemented from NCETM, if necessary. Teachers adapt relevant plans for the children in their class, deciding on which objectives to teach each day, designing specific lesson content, creating activities and sourcing resources. Work is planned to ensure all pupils access a range of fluency, reasoning and investigation activities. Learning should be supported by the CPA approach to ensure progress from the pupils' prior knowledge and understanding. Pupils should not be engaged in producing long lists of calculations in their books (e.g. exercises should be limited to 4-6 similar style questions before moving on). Once they have demonstrated fluency in a key concept, pupils should be encouraged to move on quickly to 'reasoning and investigation' style activities, where they can further explore and apply their understanding in the context of different situations and problems. In some Year Groups, pupils are set according to ability.

### Computing

Computing is used to support the Mathematics Curriculum through a variety of programmes e.g. My Maths, Time Tables Rockstars, Purple Mash and White Rose Maths Digital. There are also Computing programs available to support the planning and delivery of Mathematics specifically for teachers. These include resources to use with an interactive whiteboard during whole class teaching sessions, such as White Rose Maths and My Maths. Mathematics iApps can be purchased to support individual children.

### Early Years Foundation Stage

During Reception, our aim is for pupils to be introduced to the key principles of Maths Mastery, while covering a broad curriculum that leads towards achieving the national expectations, as described in the Early Learning Goals and embedding an understanding of maths, as part of everyday life. In this way, the pupils are ready to take a full part in the dedicated mathematics lesson by the end of the year. In order to achieve this, Reception, Year 1 and Year 2 are accessing the NCETM Mastering Number programme. The aim of this project is to secure firm foundations in number sense for all children from Reception through to Year 2. The aim of these sessions is to provide our pupils with fluency in calculation and a confidence and flexibility with number.

## ASSESSMENT

### Short-term assessment

This takes place during the lesson, based on questioning and discussion, AFL, and by the evaluation of children's work. Marking should include evidence of live marking, verbal feedback, questions and corrections where necessary to inform children of progress, indicate areas for future progress and challenge misunderstandings. Informal recording of assessment is noted on the lesson slides, to inform future planning and teaching. Pupils are also expected to self and peer assess their work in line with the school's marking and feedback policy.

### Half Term/End of Year Assessments

Children are assessed against their understanding and application of skills in relation to key national curriculum

objectives for their year group in maths. We use the terms emerging, developing, secure or greater depth to describe children's attainment in relation to those objectives. A child can be assessed as performing at an emerging, developing, secure or greater depth level in relation to a specific set of year group objectives. To help teachers make accurate judgements about pupil attainment, we use the local authority's STAR assessment framework which assesses pupil performance in maths against a series of key indicators. Teachers use the Performance Indicator statements to assess when pupils have demonstrated a secure understanding of these objectives and can apply what they have learnt independently (evidenced through work in books and standardised tests). To support teacher judgements, pupils from Years 1 to 6 sit a PUMA assessment at the end of each term. Based on a child's level of understanding in relation to these performance indicators, children are assessed as working at an emerging, developing or secure level in relation to a set of year group objectives. For example, a Y1 pupil who has achieved all or the vast majority the majority of the Y1 objectives by the end of the year will be assessed as working at 'Y1 secure', while a pupil who has a more limited understanding of these objectives is likely to be assessed as 'Y1 emerging' or 'Y1 developing' (depending on the number or type of performance indicators which have been achieved). Very high attaining pupils, working confidently at a secure level or beyond, who are able to apply and develop their understanding within a range of different contexts, will be assessed as working at a 'greater depth' level for their age. This is also referred to as 'mastery'. In Y2 and Y6, teachers use the DFE's interim assessment frameworks for maths to make a judgement at the end of the year as to whether a child is working at the expected standard for their age, are working towards the standard or working beyond it (greater depth). Attainment Expectations during the course of the academic year By the end of the autumn term, a pupil working at the expected level for their age should have met most of the objectives at the emerging stage for their year group, be at the developing stage at the end of the Spring Term and a secure stage at the end the summer term. Progress Pupil progress is measured through tracking points. A pupil will have made one tracking point progress when they move from one developmental stage to the next (e.g. A pupil who was a Y4 secure in the summer and then becomes a Y5 emerging at the end of the autumn term will have made 1 point progress). Over the course of the year, children will be expected to make 3 tracking points progress (e.g. a child moving from a Y4 secure one year to a Y5 secure the following year). This is expected or typical progress. A child making 4 or more points will have made better or more than expected progress. Tracking and recording pupil progress At the end of each half term teachers, using the STAR assessment framework, make a judgement about the attainment of each child in their class. In accordance with this judgement, an attainment code is then entered on to DCPro (a secure, online data collection portal) for each pupil, allowing the teacher (and middle/senior leaders) to track the progress of individuals and groups across the school. Summative Assessments Summative assessments are used to assess what a child can do at a particular time and are also used to compare attainment of children either within school, locally or nationally. The following formal summative assessments take place:

- End of Key Stage assessments – Year 2 and 6 (Summer term)
- Early Years Foundation Stage Profile (Summer term)
- Year 4 Multiplication Tables Check (Summer term)
- Years 1 – 6 end of term standardised tests – Hodder Education (autumn, spring and summer terms)

## **INCLUSION**

All teaching and non-teaching staff are responsible for ensuring that all pupils, irrespective of gender, ability, ethnicity and social circumstances, have access to the whole curriculum and opportunities to make the greatest progress possible in all areas of the curriculum. Every member of staff is responsible for the day-to-day operation of the policy in terms of promoting good practice.

## **Special Educational Needs**

We recognise the importance of making adequate educational provision for all the children in our care, regardless of individual ability. To this end, we ensure that work provided is appropriately challenging for children across the entire spectrum of educational ability and achievement from those with special educational needs, to those who have been identified as being 'gifted' within each year group. Such provision will be incorporated into each teacher's planning where appropriate. It is especially important that those children with special needs have full access to

Maths. Pupils' experiences should be identical but not necessarily the outcome. At Brunswick Park there are a high proportion of pupils with complex special needs, many of whom are on the autistic spectrum. For these children progress may appear more limited as some children with ASC can find it challenging when learning is generalised. The needs of each child have to be specifically catered for in order for them to progress through the curriculum. Small Steps planning criterion are used to ensure SEND pupils access learning at an appropriate level and pace. They will find vocabulary retention a challenge and may be visual or kinaesthetic learners so their needs must be taken into account when planning Mathematics activities. To improve their understanding of Mathematical concepts a variety of methods will be used, such as teaching one to one, repetitive teaching and frequently changing the mathematical situation, yet keeping the concept constant. Connections will need to be made very clear especially with problem solving activities. All pupils have access to Maths Mastery resources and use CPA to share understanding.

## **RESOURCES**

The Curriculum Leader audits resources once a year. (See Appendix 1 for a breakdown of where resources are kept.)

## **MONITORING AND REVIEW**

The monitoring of the standards of children's work and of the quality of teaching in maths is the responsibility of the maths subject leaders. The work of the subject leaders also involves supporting colleagues in the teaching of maths, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school. The maths subject leaders provide termly reports, in which they evaluate their action plan and indicate areas for further improvement. The maths subject leaders have specially allocated, regular management time, which they use to review evidence of the children's work, and to undertake lesson observations of maths teaching across the school.

## **POLICY REVIEW**

This policy will be reviewed no less than annually.

APPENDIX 1

Early Years	Key stage 1	Key Stage 2
<p>Classroom</p> <p>Rulers Buttons and threads Non-standard counting equipment e.g. conkers Logi people Peg boards Bricks Rhythm and beads Polydron and Atrilink Mosaics Cylinders 100 squares Solid shapes - 2D and 3D Games Star bars Number cards Dice and counters Block graph rods Floor tiles - number/shape dominoes Jigsaws and matching games Dominoes - shape/picture/Spot Timers Sewing squares Stacking flats and rings Tactile figures Number frieze/posters/charts Height chart Multilink Cotton reels</p>	<p>Classroom (when appropriate)</p> <p>Rulers Unifix Logi shapes 3 D shapes Centicubes Sorting rings Calculators Number lines 100 square boards 0-10 boards Multilink Multibase Beads Block graph rods Number cards Dice and counters Uniform cubes Squared paper Jigsaws Dominoes Number frieze X-table frieze/poster Height chart</p>	<p>Classroom (when appropriate)</p> <p>Dice and counters 100 squares Number lines Place value cards Graph paper 2D and 3D shapes Clix Compasses Protractors Money Dienes Number cards Unifix or Multilink Dominoes Tape measures Weights Pegs and peg boards Calculators Number fans Number stick Number cards</p>
<p><b>Central</b></p> <p>Balances Number floor tiles Tape measures and metre rules clocks Thermometer Cuisenaire Abacus Animal sorts Tree shapes Tills and money</p>	<p><b>Central</b>-all resources are accessible when needed</p> <p>Timers Peg boards Cotton Reels Multilink Mirrors Tracing paper Times table charts Compressed Scales and weights Timers Metre rulers Money Dienes/Base 10</p>	