



LATCHMERE
ACADEMY TRUST

Maths Policy

(to be read in conjunction with the Calculation Policy)

Status	Curriculum
Review Cycle	Annual
Date written/ last review	September 2022
Date of next review	September 2023

NB: Throughout this document Latchmere Academy Trust may be abbreviated to "LAT"

Introduction

“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 in most forms of employment. A high-quality mathematics education, therefore, provides a foundation for understanding the world, the ability to reason mathematically and a sense of enjoyment and curiosity about the subject.” (National curriculum 2014)

We aim to provide stimulating and varied learning experiences which will encourage children throughout the school to reach their full mathematical potential by developing a positive and confident attitude towards mathematics. This policy should be read in conjunction with the calculation policy.

Mathematics helps us to understand and make sense of the world in which we live. It provides a precise means of communication, using numbers, symbols and shapes. It is both worthwhile and fun to use and manipulate mathematics, since it is all around us.

The aims of the 2014 National Curriculum are for our pupils to:

- become fluent in the fundamentals of mathematics through varied and frequent practice with complexity increasing over time
- develop conceptual understanding and ability to recall and apply knowledge rapidly and accurately
- reason mathematically; follow a line of enquiry, conjecture relationships and generalisations
- develop an argument, justification and proof by using mathematical language
- problem solve by applying knowledge to a variety of routine and non-routine problems breaking down problems into simpler steps and persevering in answering.

The 2014 National Curriculum in England sets out programmes of study for each year group which informs our mathematics teaching in Key Stages 1 and 2. The programmes of study for the Foundation Stage set out in the EYFS Framework 2021 inform our teaching in the early years.

At Latchmere Academy Trust, we believe that mathematics permeates the curriculum and:

- should be a motivational force throughout the school;
- equips pupils with intellectual and practical skills to understand and make decisions about everyday life;
- is important in helping pupils to access learning and make good progress across the curriculum;
- is a creative discipline that can stimulate moments of wonder, for example when connections are made and patterns are generated;
- develops pupils' capacity to **think, reason, explain** and **solve problems** in a clear and logical way;
- is best learnt through direct experience and the opportunity to discuss mathematical ideas and develop mathematical language;
- is an entitlement for all children and develops mathematical, kinaesthetic, linguistic, visual and interpersonal forms of intelligence.

The Key Objective:

- to create confident numerate children who are able to use mathematics effectively as a tool in their lives.

Therefore, we aim to:

- develop a positive attitude towards mathematics, thus increasing children's confidence in and awareness of their own mathematical abilities
- provide children with a secure foundation of mathematical skills which they can utilise across other areas of the curriculum
- meet the varying needs and interests of children to enable them to reach their full potential by employing a range of teaching approaches linked to different learning styles
- develop a range of computational skills which can be used to solve number problems in a variety of contexts
- develop the use of appropriate mathematical language in order for them to communicate with precision
- to give regular opportunities to discuss and debate mathematical concepts
- encourage logical and systematic thinking, and promote mathematical inquiry, investigation and initiative
- offer children learning experiences that can be applied into the wider world and other subjects across the curriculum.

When teaching mathematical skills, we aim to ensure our children:

- 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
- calculate accurately and efficiently, both mentally and with pencil and paper, drawing on a range of calculation strategies
- make sense of number problems and recognise the operations needed to solve them
- explain their methods and reasoning using correct mathematical terms
- judge whether their answers are reasonable and have strategies for checking them where necessary
- suggest suitable units for measuring, and make sensible estimates of measurements
- explain and make predictions from the numbers in graphs, diagrams, charts and tables
- recognise when it is appropriate to use IT, and to be able to do so effectively

Our approach:

In the 2020 – 2021 school year, a decision was taken to use the White Rose Maths Hub schemes of learning. All staff took part in a comprehensive series of six White Rose training sessions covering the following topics; bar modelling, CPA, questioning, reasoning and problem solving and thinking through variation.

The school adopted a mastery approach and have used the CPA (concrete, pictorial, abstract) method since September 2021. The Concrete Pictorial Abstract (CPA) approach is a system of learning that uses physical and visual aids to build a child's understanding of abstract topics.

Pupils are introduced to a new mathematical concept through the use of **concrete** resources (e.g. fruit, Dienes blocks etc). When they are comfortable solving problems with physical aids, they are given problems with pictures – usually **pictorial representations** of the concrete objects they were using.

Then they are asked to solve problems where they only have the **abstract** i.e. numbers or other symbols. Building these steps across a lesson can help pupils better understand the relationship between numbers and the real world, and therefore helps secure their understanding of the mathematical concept they are learning.

Planning and organisation:

Long term planning

The National Curriculum for Mathematics 2014, the EYFS Framework 2021 and Development Matters (revised July 2021) provide the long-term planning for mathematics taught in the school.

Medium term planning

Years 1-6 use the White Rose Maths Hub schemes of learning as their medium term planning documents. These schemes provide teachers with examples for maths objectives which are broken down into fluency, reasoning and problem solving as well as key aims of the National Curriculum. They ensure teachers stay in the required key stage and support the ideal of depth before breadth. They support pupils working together as a whole group and provide plenty of time to build reasoning and problem solving elements into the curriculum.

Short term planning

The above schemes of learning support daily lesson planning which are monitored at intervals by the mathematics subject team.

All classes have a 4-5 mathematics lesson per week. Across the school, lessons are between 45 – 60 minutes long.

EYFS planning reflects the needs of individual children with thought to where the children are now and what steps they need to take next. Teachers of the EYFS ensure the children learn through a mixture of adult led activities and child initiated activities both inside and outside of the classroom. Mathematics is taught through an integrated approach. From September 2021 there will be a daily 5 minute maths session where possible, which will provide an opportunity to embed prior learning.

Marking and presentation

Teachers are expected to adhere to the schools marking policy and the presentation policy. Regular book scrutinys' are timetabled to ensure consistency across the school.

Monitoring and Evaluation

The maths team, alongside the senior leadership team are responsible for monitoring and evaluating curriculum progress. This is done through book scrutiny, learning walks, lesson observations, planning checks, pupil discussions, staff discussion and audits of resources.

Information Technology

- The children's mathematical skills are enhanced through regular employment of IT. Interactive resources are used to introduce and consolidate concepts where they can stimulate and motivate children, and where they can convey mathematical ideas and promote thinking more effectively than through other media. Children can also practise mathematical concepts using carefully selected games. In Key Stage 1 the children use Numbots and in Key Stage 2 Times Tables Rock Stars to aid fluency with number facts.
- Calculators are used near the end of Key Stage 2 to help deepen children's understanding of concepts and promote further mathematical thinking. This is not to be used as a substitute for good written and mental arithmetic. Children are taught how to decide when it is, and when it is not, appropriate to use a calculator. They draw upon their skills of rounding, estimating, approximating and checking results to ensure the accuracy of their answers when using calculators.

Inclusion

We ensure every pupil has the opportunity to experience success in learning and to achieve as high a standard as possible. All children are entitled to access the mathematics curriculum and make progress through appropriately differentiated work. It is the teacher's responsibility to ensure that all children are challenged at a level appropriate to their ability.

Our planning considers children of all abilities, including those with special educational needs. A range of strategies are employed throughout the school, utilising staff expertise both in and out of the classroom setting.

Assessment

Children are continually assessed in a variety of ways, with AFL at the heart of the process by:

- Regular marking of work
- Analysing errors and picking up misconceptions
- Ongoing informal assessment takes place during each lesson through questioning and the provision of collaborative activities to engender pupil discussion
- A dialogue is maintained between teacher and pupil with children reflecting on their learning through oral and written comments
- Observing how children apply concepts to challenges
- Formative tests are administered at agreed points during the academic year

- Assessment data feeds into Target Tracker, allowing the monitoring of individual children as they progress through the school
- PPG pupils have additional monitoring to assess their progress

These ongoing assessments inform future planning and teaching. Lessons are adapted and short term planning evaluated in response to these assessments.

Resources and Displays

- The school made a considerable investment in a range of practical apparatus to support the teaching of White Rose Maths. This includes numicon, base 10 materials, place value counters, unifix and cuisenaire rods.
- All classes have been equipped with materials to support the delivery of maths. Larger items such as scales, trundle wheels and measuring cylinders are available
- We make effective use of a range of published materials and those available electronically which allows flexibility in the planning and delivery of mathematics.

Children should be encouraged to use whatever resources are available in the classroom which they feel would be beneficial.

Each classroom has a maths area which could consist of a working wall, a strategy wall or a problem solving or resource area where pupils can engage and refer to.

Home/School Links

We extend opportunities for learning mathematics by providing regular activities for children to work on at home.

These include:

- Years 1 – 5, optional home learning maths activities are sent home each half term. These are often practical, in the form of a games and fun.
- Year 6 send home weekly maths home learning recapping on prior learning
- Children accessing Times Tables Rockstars and Numbots from home to practise their number facts. Children are encouraged to use these daily.

At Latchmere we encourage parents to be involved by:

- inviting them in twice a year to discuss the progress of their child.
- providing an annual Record of Achievement which gives parents details of progress made by the children, including children's attainment
- providing maths information on the school website including a maths subject story showing the progression of mathematical skills taught
- an update of maths in the parents newsletter each term as well as celebrating the achievements of the children who have entered maths competitions such as 'The Primary Mathematics Challenge.'