



Macaulay Primary Academy

Mathematics Policy

Introduction

Macaulay Primary Academy is a great place to learn and work. Our school motto is 'Reaching for the Stars' and we believe that all children, irrespective of their background, can succeed and achieve their ambitions.

Mathematics is both a *key skill* within school, and a *life skill* to be utilised throughout every person's day to day experiences.

Rationale

Mathematics equips pupils with the uniquely powerful set of tools to understand and change the world. These tools include logical reasoning, problem solving skills and the ability to think in abstract ways. Mathematics is important in everyday life. It is integral to all aspects of life and with this in mind we endeavour to ensure that children develop a positive and enthusiastic attitude towards mathematics that will stay with them.

The National Curriculum for mathematics (2014) describes in detail what pupils must learn in each year group. Combined with our Calculation Policy, this ensures continuity, progression and high expectations for attainment in mathematics.

It is vital that a positive attitude towards mathematics is encouraged amongst all of our pupils in order to foster confidence and achievement in a skill that is essential in our society. At Macaulay Primary Academy we use the National Curriculum for Mathematics (2014) as the basis of our mathematics programme. We are committed to ensuring that all pupils achieve mastery in the key concepts of mathematics, appropriate for their age group, in order that they make genuine progress and avoid gaps in their understanding that provide barriers to learning as they move through education. Assessment for Learning, an emphasis on investigation, problem solving, the development of mathematical thinking and development of teacher subject knowledge are therefore essential components of the Macaulay approach to this subject.

Aims

- To foster a positive attitude to mathematics as an interesting and attractive part of the curriculum.
- To develop the ability to think clearly and logically, with confidence, flexibility and independence of thought.
- To develop a deeper understanding of mathematics through a process of enquiry and investigation.
- To develop an understanding of the connectivity of patterns and relationships within mathematics.
- To develop the ability to apply knowledge, skills and ideas in real life contexts outside the classroom, and become aware of the uses of mathematics in the wider world.
- To develop the ability to use mathematics as a means of communicating ideas.
- To develop an ability and inclination to work both alone and cooperatively to solve mathematical problems.
- To develop personal qualities such as perseverance, independent thinking, cooperation and self confidence through a sense of achievement and success.
- To develop an appreciation of the creative aspects of mathematics and an awareness of its aesthetic appeal.

Principles of Teaching and Learning

The school uses a variety of teaching and learning styles in mathematics lessons during each lesson.

Our teachers strive to:

- build children's confidence and self esteem
- develop children's independence
- allow all children to experience regular success
- Contextualise mathematics
- Use practical approaches to mathematics (models and images)
- Encourage children to select independently resources to help them
- Challenge children of all abilities.
- Encourage children to enjoy mathematics
- Develop a child's understanding of mathematical language
- Learn from teachers, peers and their own mistakes.
- Allow children to ask questions as well as answer them.

Our pupils should:

- have a well-developed sense of the size of a number and where it fits into the number system (place value)
- know by heart number facts such as number bonds, multiplication tables, doubles and halves
- use what they know by heart to figure out numbers mentally
- calculate accurately and efficiently, both mentally and in writing and paper,
- drawing on a range of calculation strategies
- recognise when it is appropriate to use a calculator and be able to do so effectively
- make sense of number problems, including non-routine/'real' problems and identify 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
- develop spatial awareness and an understanding of the properties of 2D and 3D shapes

To provide adequate time for developing mathematics, maths is taught daily and discretely. However, application of skills are linked across the curriculum where appropriate.

Maths Curriculum Planning

Mathematics is a core subject in the National Curriculum and we use the objectives from this to support planning and to assess children's progress.

Staff use long term planning to ensure coverage of all areas of the National Curriculum and medium term planning to differentiate objectives according to the set which they teach.

It is the class teacher who completes the weekly plans for the teaching of mathematics. These weekly plans list the specific learning objectives for each lesson and give details of how the lessons are to be taught. The class teacher keeps these individual plans, which they annotate according to the success of the lesson.

Maths teaching

Maths is taught in a variety of ways within the academy depending on the specific age phase.

Foundation Stage

Basic counting and chanting of numbers in sequence is taught daily through 'Snappy Maths' games, songs and activities. Children will be taught mathematical concepts through the continual provision. There will be a mixture of group work, class inputs, and individual work with an adult. Maths will be taught in both the inside and outside provision. There is a dedicated maths base in the unit (Blue Room) where the provision directly supports mathematical development. All Reception children will spend some time in this room each day.

Year 1

A daily maths lesson with a mental oral starter reinforcing appropriate mathematical skills for the year group. This is followed by a short whole class input, where the teaching assistant may take a group out for a differentiated input. Children will then have access to a range of activities, some teacher led and some independently. There will be a short plenary to develop learning or address misconceptions at the end of the lesson. Same day intervention will be introduced as the year progresses.

Year 2

There will be a 'same day intervention' maths lesson each day. There will be a whole class input which will give the teacher the opportunity for assessment for learning to take place and groupings for the main part of the lesson to be identified. The teaching assistant may take a group for a differentiated input. The main part of the lesson will consist of differentiated activities (bronze, silver or gold challenges) appropriate for the Year 2 curriculum, becoming progressively more difficult. Silver challenges will be based on reasoning activities and the gold challenge will be based on mastery.

Key Stage 2

There will be a 'same day intervention' maths lesson each day. There will be a whole class input which will give the teacher the opportunity for assessment for learning to take place and groupings for the main part of the lesson to be identified. The teaching assistant may take a group for a differentiated input. The main part of the lesson will consist of differentiated activities (bronze, silver or gold challenges) appropriate for the expected standard for the year group, becoming progressively more difficult. Silver challenges will be based on reasoning activities and the gold challenge will be based on mastery.

Assessment

This section details the various assessment methods and practices used in Macaulay Primary Academy through which we ensure that children are making appropriate progress and that the activities they take part in are suitably matched to their ability and level of development.

Formative Assessment (AfL) - (monitoring children's learning)

Assessment is an integral and continuous part of the teaching and learning process at Macaulay Primary Academy and much of it is done informally as part of each teacher's day to day work. Teachers integrate the use of formative assessment strategies such as: effective questioning, clear learning objectives, the use of success criteria, effective feedback and response in their teaching and marking and observing children participating in activities. Findings from these types of assessment are used to inform future planning.

Summative Assessment – (evaluating children's learning)

More formal methods are used to determine the levels of achievement of children at various times during the school year:

- **Assessment Weeks:** We use termly assessments as a way of recording children's progress in objectives covered across that specific term. This information is then updated onto the child's maths assessment sheet and shared with the child.
- **Standardised Testing.** Standardised tests are used in years 2 and 6. They allow the school to measure each child's attainment in all areas of mathematics, and compare this with an "average" for children of that age.
- The results are used to monitor individual's progress year on year, to rank order a class and to identify those children who have Special Needs in mathematics.

Statutory End of Key Stage Assessment. The National Curriculum requires that each child is assessed, and assigned a Level of attainment for each of the 5 Attainment Targets in Mathematics. This is to be carried out at the end of Key Stage One and at the end of Key Stage Two. The KS 1 Level for a child will normally be within the range of BLW to GDS, with most children achieving EXS. The KS 2 Level for a child will normally be within the range BLW to GDS, with most children achieving EXS. Although Levels are assessed for each Attainment Target, parents will normally be informed of one overall Level for mathematics, calculated by averaging the Levels achieved in each of the 5 Attainment Targets.

Resources

A bank of essential mathematics resources are kept in each classroom. Further resources relating to key whole school topics are kept in a maths cupboard along the KS2 corridor. Staff have a maths resource list so that they can locate this equipment efficiently.

Information and Communication Technology

Teachers should use their judgement about when ICT tools should be used, including the use of calculators, ipods, ipads and computers.

Role of the Subject Leader

- Ensures teachers understand the requirements of the National Curriculum and helps them to plan lessons. Leads by example by setting high standards in their own teaching.
- Prepares, organises and leads CPD and joint professional development.
- Works with the SENCO and SLT.
- Observes colleagues with a view to identifying the support they need.
- Discusses regularly with the Head of Academy and the mathematics governor the progress of implementing National Curriculum for Mathematics in school.
- Monitors and evaluates mathematics provision in the school by conducting regular work scrutiny, learning walks and assessment data analysis.

Moderating and review

Moderating of the standards of children's work and of the quality teaching in mathematics is the responsibility of the mathematics subject leader alongside members of the senior leadership team. The work of the mathematics subject leader also involves supporting colleagues in the teaching of mathematics, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school. The mathematics subject leader gives the Head of Academy a termly report in which s/he evaluates strengths and weaknesses in the subject and indicates areas for further improvement.