

THE ROCHE SCHOOL
Mathematics Policy

This policy which applies to the whole school is saved on the school shared system and upon request a copy (which can be made available in large print or other accessible format if required) may be obtained from the School Office.

Information Sharing Category	School Shared System (Public copy provided on request)
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Responsible Area	Lee Murphy

Purpose:

“Mathematics is the queen of the sciences and number theory is the queen of mathematics.”

(Johann Carl Freiderich Gauss, 1777 – 1855)

Mathematics is a creative and highly interconnected 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, and appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject. (New National Curriculum Framework Document, 2016).

Aims:

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.

The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. **However, decisions about when to progress are based on the security of pupils’ understanding and their readiness to progress to the next stage.** Pupils who grasp concepts rapidly are challenged through being offered rich and sophisticated problems before any acceleration through new content (through Mastery, e.g. ‘Deeper Dives’ into a topic/concept). Those who are

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not sufficiently fluent with earlier material consolidate their understanding, including through additional practice, before moving on.

As part of the Independent sector, we also aim to prepare our pupils for the 11+ examinations or entrance examinations into selective Secondary schools. Children are taught in sets appropriate to their abilities and cover materials outlined in the ISEB 11+ Curriculum from year 5 onwards. ([see link](#))

Teaching and Learning:

All teaching must be good, and in many cases outstanding. Underpinning all good or outstanding teaching in mathematics is the expertise and sound subject knowledge of the staff. Regular professional development, observations and training will help staff to:

- Deliver the school's curriculum thoroughly and consistently
- Enhance staff subject knowledge (*curriculum leaders go on PD courses and feedback via INSETs, e.g. in mathematical reasoning and problem solving, which became 'Reasoning at The Roche INSET and PD powerpoint'*)
- Promote the use of **high-level, varied mathematical language** to promote justification, argument and proof
- Allow children to **embed mental concepts** from an early age, developing more confident, fluent mathematicians
- Demonstrate mastery of core concepts that pupils have applied **in a variety of ways**, over time
- Question children on their understanding and increase their ability to **explain their reasoning** and methodology
- Incorporate **problem solving and challenge** into every lesson
- Use mental maths throughout the lesson and developmental strategies for solving all mathematical concepts
- Use teaching assistants effectively to **support, develop and assess pupils**
- Embed number bonds for addition and subtraction to 20 by the end of year 2 and times tables fluidity and ensure all children have quick recall of tables to 12, by the end of year 4.

Early Years:

Work undertaken in the Early Years follows the Early Years 'Development Matters' EYF5 document. All children are given ample opportunity to develop their understanding of the core concepts of mathematics, as set out in the Early Learning Goals ([read link](#)). Lessons incorporate varied activities that allow children to use, enjoy, explore, practice and talk confidently about mathematics. In Nursery, some Montessori equipment is used to support mathematical development. Reception classes take home 'maths packs' which support mathematical learning at home through physical resources.

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Curriculum, Differentiation and Support:

Teachers plan half-termly, with the planning being fluid according to the on-going formative assessment that takes place in each lesson but is based on the appropriate termly overview from suggested documents. Nursery plan maths through play ([see link](#)) Reception uses White Rose; years 1 to 5 use Hamilton Brookes and Year 6 use ISEB 11+.

Children are set according to attainment and needs across the school for mathematics. Setting helps to challenge age related knowledge, reasoning and problem solving with the incentive to deepen knowledge and understanding. Sets are fluid, and children can move up or down according to needs. All children will move through the curriculum at their own pace, via small differentiated targets and ***adaptive teaching approaches***.

This can be achieved through using a variety of approaches and resources, according to which suit the individual child's learning styles, for example ***concrete, pictorial and support***.

Where necessary, we will implement timely support and interventions (such as maths boosters) to help those children not making adequate progress. These interventions will be targeted towards individual needs and delivered by qualified staff outside of class time. We will use standardized assessment tools to highlight areas of difficulty in mathematics and use targeted teaching to help close that gap and bring children up to the expected level. Support will be delivered using one-to-one teaching, small group interventions or through computer programmes (e.g. Atom, Times Tables Rockstars, Numbots). This support will be closely monitored by the Head of Mathematics and SENCo, and continual tracking will be put in place to see that progress is being made.

Enrichment activities are embedded into the whole school curriculum where all children can access higher-level thinking activities. According to our assessments, we encourage our children to attempt mathematical challenge competitions, the higher attainers are entered into the UKMT Junior Challenge, while others and high attainers from Year 3 and 4 attempt the Primary Maths Challenge. For most of Year 2 and some Year 3 there is the First Maths Challenge. Many children attend inter-school challenges in the local community (for example the Emanuel School Primary Team Mathematics Challenge for Year 5), STEM workshops and maths-related activity days. Chess, times-tables, and additional maths and STEM clubs (for example, Dr Alex's Astro-Physics Club that uses mathematical concepts when investigating space for high-attaining pupils) run in school to enhance pupils learning and develop a passion for the subject. Our setting also enables us to offer additional support and challenge across the school for high-attaining children.

We have the opportunity once each year for the children to complete a survey on their views of maths, which we recently moved onto an on-line format from a paper format, to encourage 'pupil voice' on the subject. ([see link](#))

Marking and Assessment:

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The main purpose of the marking policy is to ensure that as children progress through the school, they benefit from specific guidance and feedback. Marking for learning and improvement is key, allowing children the time to read and reflect on their work. Pupils' work should be marked in line with the Marking Policy.

All assessment is used to inform teaching and learning. Assessment for learning is carried out continuously, through questioning, targeted work, and mastery assessments. Assessment for learning feeds into planning and adaptations to planning and tasks are made accordingly. Children have opportunities to self-assess their learning against the learning objectives regularly.

Summative assessment is used at the end of each term to provide further understanding and evidence of the level that a child is working at and to inform a more rounded judgement of their abilities. GL assessments are taken across the school in the Autumn and Summer terms for continual progress to be mapped internally. These assessments break down learning into key stands of the curriculum, highlighting for teachers which areas of mathematics each child is strong in or needs further support. This then feeds into future planning. Whole-school internal tracking is used to monitor progress, and termly pupil progress meetings are held within each year group to highlight any children who need additional support or may need to move sets. In the Spring Term, Testbase tests are used to formally assess.

Calculation Policy:

We have a policy for progression in calculation methods to ensure continuity and consistency throughout the school. These include addition, subtraction, multiplication and division. This policy was extensively re-written and updated in October 2023, and then fed-back to all teachers of mathematics in the school in an INSET day to highlight expectations.

Parents and Homework:

We recognize that parents make a significant difference to children's progress in mathematics, and we encourage a positive partnership. Parents can assess relevant documentation on the school website (The Roche School Curriculum Policy, Calculation Policy, etc). Parent workshops are organized with relation to the maths curriculum and calculation policies, in order to support children's learning at home. All parents are invited to attend from all key stages. We have separate KS1 and KS2 workshops on calculation expectations each year, as well as topic-specific workshops (e.g. working with fractions). Regular parents' meetings are held to ensure parents are on-board with mathematics teaching and learning. Where necessary, further meetings are held with any parents who wish to discuss progress or support.

Please see the Homework Policy in regards to homework requirements in mathematics. We use a combination of paper-based and on-line (using MyMaths, Atom, TTRS and Numbots) homeworks.

Other documentation to be read in accordance with the Mathematics Policy include:

- The new National Curriculum documentation 2014
- The Calculation Policy
- The Roche School Curriculum Policy
- The Marking Policy
- The Homework Policy
- The Assessment Policy