



Mathematics Policy

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Priory Junior School

Mathematics Policy 2016

Introduction

Mathematics teaches us how to make sense of the world around us through developing a child's ability to calculate, to reason and to solve problems. It enables children to understand and appreciate relationships and patterns in both number and space in their everyday lives. Mathematics is a key life skill necessary in whatever path an individual takes through life. Effective Learning takes place when students are given opportunities to solve problems by developing their understanding, making links between different areas of mathematics and applying skills. Teaching at Priory Junior School involves creating an appropriate environment in which our pupils can respond to high levels of expectation and challenge.

1. Aims and objectives

The National Curriculum 2014 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 have conceptual understanding and are able to recall and apply their knowledge rapidly and accurately to problems
- **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.

Our aims at Priory Junior School are to:

- promote enjoyment and enthusiasm for learning through practical activity, exploration and discussion;
- develop mathematical skills and knowledge accompanied by the quick recall of basic facts;
- promote confident, competent and independent mathematicians who can communicate their ideas and concepts using appropriate mathematical language;
- develop an awareness of mathematics beyond the classroom.

The objectives that will enable us to achieve these aims are to:

- develop an understanding of number and the number system;
- explore features of shape and space, and develop measuring skills in relation to everyday situations;
- develop the ability to, and understand the importance of, solving problems through decision-making and reasoning in relation to everyday situations;
- develop a practical understanding of the ways in which information is gathered and presented;
- relate their mathematical skills to ICT effectively;
- develop a positive attitude to mathematics;
- ensure investigative maths feeds into our everyday teaching and 'Big Investigate' activities.

2. Teaching and Learning Strategies

A range of teaching and learning strategies are used at Priory Junior School including direct teaching, modelling, explanation, demonstration, questioning, target and discussion and using concrete objects

and measuring tools to aid conceptual understanding. This is done both through whole-class, group-direct teaching and intervention groups during assembly time.

Objectives for mathematics teaching are taken from the Rising Stars framework which has been written to provide teachers with a structure for designing learning sequences covering the content of the new National Curriculum 2014. In the knowledge that learning mathematics involves exposing structures and making connections, this framework is built around four themes: **number sense**, **additive reasoning**, **multiplicative reasoning** and **geometric reasoning**. Each sequence brings together learning objectives from different domains within the National Curriculum programmes of study that are mathematically connected around a central idea. Therefore through our teaching we make clear connections between areas of mathematics, encouraging children to use what they know and understand rather than treating each area of maths as separate and unconnected.

The principal focus of mathematics teaching is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value to include larger integers at upper KS2. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio. Pupils should develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers. At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value and, complex properties of numbers and arithmetic within upper Key Stage 2. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching should also ensure that pupils draw, with increasing accuracy, and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. Teaching at upper KS2 should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number.

Please refer to the calculation policy that has been reviewed in light of the new National Curriculum.

The school embraces a thinking skills approach across the curriculum. Where appropriate, activities and ideas from the Thinking Skills policy will be used in mathematics. The book 'Thinking by Number' is available for all year groups as a resource.

3. Planning and Organisation

The approach to the teaching of mathematics within the school is based on:-

- A mathematics lesson every day
- A clear focus on direct, instructional teaching and interactive oral and practical work with the whole class
- An intervention session for pupils who struggled to meet the objectives of the mathematics lesson- this will usually be held on the same day as the lesson once the teacher has identified who would benefit.

The curriculum is delivered by class teachers and TAs. Mathematics teaching at Priory is moving away from the practice of 'putting children on different tables, with different work, according to perceived ability'. Instead we are trialling the idea of keeping the whole class together on the same content for the entirety of the lesson as much as possible and children choose their level of challenge (self-differentiation). At times, children may be given specific tasks after teachers' on-going assessments. Depth of understanding is being prioritised, alongside high expectations of every child. The objective of our teaching is to create deeper understanding rather than to accelerate pupils through new content.' (Jane Jones- Ofsted's National Lead for Mathematics). However, there may be

exceptions to this style of teaching, in particular with children of more complex needs where an individual curriculum is essential.

Planning is based upon the new National Curriculum (2014) using the Rising Stars Framework. Programmes of Study should inform medium term plans and subsequently weekly planning. Class teachers are responsible for the relevant provision of their own classes and individually develop weekly plans which give details of learning objectives and appropriate activities. Although planned in advance, plans are adjusted on a daily basis to better suit the arising needs of a class and individual pupils and shape the planning of future teaching.

By the end of year 4, pupils should have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work. We therefore run short 'Multiplication Madness' slots throughout the week for children to practise their times tables and corresponding division facts for which accurate and speedy results are rewarded. All classes have a leader board in their classrooms to celebrate the children's progress.

By the end of year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages. Due to this arithmetic skills which are taught within each theme of the Rising Stars framework are recapped daily to ensure the methods are kept sharp.

4. Mathematics in other subject areas

With the implementation of focus education, mathematics is planned for across the curriculum, with key skills being taught in maths lessons and the chance to practise and consolidate these skills being given in the foundation curriculum.

5. Assessment, Recording and Reporting

The assessment and recording of Mathematics is part of the overall assessment of the child and should be seen alongside all of the other areas of development. Assessment in mathematics reflects the general principles and procedures laid down in the school's assessment policy. Key elements of our mathematics assessments are:

- Use of Rising Stars assessment tests throughout the year
- SAT results
- Daily assessment of pupils within lesson in preparation for intervention groups, teacher providing a positive comment that is specifically linked to the Learning and Objective, and a target, where necessary in order to move children on in their Mathematics. (See marking policy for PAR marking).

Formal written reports are provided each year and this information is shared with parents. Additionally, two other meetings are held each year, with parents, to discuss progress informally and to share targets.

6. Resources

As with all curriculum policies, equal access to the curriculum is a priority. Planning and presentation of resources and tasks will ensure that all activities are inclusive. Special arrangements will be made where appropriate. All classrooms are fitted with interactive whiteboards and have timetabled access to the laptops and iPads. A range of software is available to support work with advancing technology

both at school and for home learning. A school homework lunchtime club is available for those children who do not have access to this technology and the internet.

7. Equal Opportunities

Providing Equal Opportunities is the responsibility of the whole school community and must be reflected throughout the organisation of the school and at the heart of its ethos. The taught and hidden curriculum will provide opportunities for all pupils to thrive and at Priory we recognise that treating people equally does not always mean treating them the same. All curriculum subjects should be planned and marked with Equal Opportunities in mind. They should expose all of our pupils to a wide range of learning experiences and promote an awareness and curiosity about the world. Our curriculum aims to prepare all of our pupils for life in modern Britain and to be citizens of a diverse and changing world.

8. Monitoring and review

Monitoring of the standards of children's work and of the quality of teaching in mathematics is the responsibility of the mathematics subject leader and the SLT.

The work of the mathematics subject leader also involves supporting colleagues in the teaching of mathematics, keeping informed about current developments in the subject and providing a strategic lead and direction for the subject in school. The mathematics subject leader gives the head teacher an annual summary in which s/he evaluates strengths and weaknesses in the subject and indicates areas for further improvement. The head teacher allocates management time to the mathematics subject leader so s/he can review samples of children's work and undertake lesson observations of mathematics teaching across school. Governors are informed through the head teacher's report and specifically at the Development and Planning committee meetings.

9. Role of Governors

Governors determine, support, monitor and review the school policies. They support the use of appropriate teaching strategies by allocating resources effectively. They ensure that the building and equipment are safe. They monitor pupil attainment across the school and ensure that staff development and performance management promote good quality teaching.