



Robertswood School Mathematics Policy

Mathematics

Mathematics is a universal language. It is a way of communicating, being used to describe, to illustrate, to interpret, to predict and to explain. It is a creative subject in which pupils have the chance to explore for themselves, and to create beautiful and elegant objects, patterns and arguments. It develops the essential numerical skills that enable pupils to understand and communicate with the modern technological world, the ability to think in abstract ways and solve problems. Different cultures have contributed to the development and application of Mathematics and the subject transcends cultural boundaries.

Mathematics provides the chance to prove beyond doubt, using logical argument.

National Developments

This policy has been written taking into account the changes to the national curriculum and the objectives provided by the Mathematics programmes of study.

Aims

At Robertswood School we recognise that all pupils know a lot of mathematics, whatever their stage of schooling. The aim in mathematics is to enable pupils to:

1. learn the facts and techniques that they will need to study the subject further and for everyday life
2. solve problems using the most appropriate method
3. reach the highest standard possible and to think for themselves within the subject
4. be creative and imaginative, to appreciate the power and beauty of mathematics
5. be confident to talk about their work
6. be confident to work mentally
7. have good numeracy skills
8. to work alongside others to investigate and discuss methods and processes

Organisation

Lessons at Robertswood are based on the national curriculum which is divided into the following sections:

- Number – number and place value
- Number – addition and subtraction
- Number – multiplication and division
- Number – fractions (including decimals and percentages)
- Measurement
- Geometry – properties of shape
- Geometry – position and direction
- Statistics (Year 2 and above)
- Ratio (Year 6) and proportion (Year 5)
- Algebra (Year 6)

Each class will be focussing on number until the children are secure. An opportunity to teach the other sections of the curriculum will be at the end of each term or when the class has become secure on number.

There is a mathematics lesson every day. In Key Stage 1 we expect mathematics to take up about four hours each week and in Key Stage 2 about five hours. Medium term plans for each year group shows the number of weeks and objectives covered during the three terms.

Teaching

Usually the class will be working on the same unit, allowing the teacher to work with the whole class, with groups of pupils and, at times, with individual pupils. Work is planned for groups of children, working at a similar level, but at times teachers will group the pupils differently in order to enable different pupils to work together. From Year 4, the children are set for Mathematics to better address the needs of the pupils.

We lay great stress on pupils talking about their mathematics to learn by articulating their thoughts, listening to the views of other people and from the teacher discussing their thinking, this is encouraged through higher order thinking questions.

Each lesson will begin with an oral/mental starter lasting approximately 10 minutes. These short activities focus on developing mental Mathematics skills or as an opportunity to revisit topics covered during the year. This is followed by the main teaching which will be focussed to the ability of the majority of the class which lasts 15 to 25 minutes. There will then be a main activity of 25 to 35 minutes depending on the age of the children where they work either independently or as part of a small group. This will be followed by a plenary session of 10 to 15 minutes. In many of these pupils will talk about their work and be given opportunities to explain their thinking.

We use a wide mix of games, puzzles and investigations. In each unit of work every pupil should experience mathematics through the full mix of approaches.

Mental work/recording

We want pupils to work mentally whenever possible.

Mental Mathematics activities should be included daily within the mental and oral starter.

We aim to help pupils develop written methods that reflect their mental processes.

Formal written calculation methods

We teach pupils to choose a suitable paper and pencil method when working mentally is not possible. It is important that pupils experience a consistency of approach in developing formal written methods for calculating. The methods taught throughout the school show progression and are available to parents and children on the school website. Each class should refer to the policy when teaching methods to see what the children should already know and how the methods will progress.

Computing, Calculators and other resources

Pupils will learn how to use calculators from year 5 onwards, where it is appropriate to do so. The pupils will be taught how to use them. However, they are mostly expected to work mentally and use written methods. Key Stage 2 SAT's no longer require the use of a calculator therefore the children will use calculators if working on more complex questions.

Mathematics contributes greatly to the development of computing skills and competencies. We will teach children to use spreadsheets in handling data, use logo in measures, shape, and space and other software to develop pupils' understanding of mathematics. In KS1 other resources such as RM Mathematics and Mathletics allow children to access Mathematics activities as well as data handling opportunities on a more basic level. Before school and during lunchtime extra clubs are run to allow access to these resources.

Most resources are kept in a central storage, accessible to all members of staff. We teach pupils how to use them and recognise that we need to teach them to make appropriate choices of equipment.

Assessment

Regular assessments of pupils' progress helps to monitor the children throughout the school and support planning. There are several aspects to assessing Mathematics these are:

1. Informal tests of mental arithmetic – From year 1, the skills needed to work out answers mentally are taught weekly and these skills are assessed frequently.
2. Assessment activities - There are assessment tests in the 'Headstart' scheme. This work, together with the recorded work over the previous six weeks, should identify development and any misconceptions. Headstart looks at each individual area of Mathematics and gives an overall age related judgement against the new curriculum.
3. Assessment against National Curriculum judgement - Each term every child's progress should be recorded as a judgement based against the National Curriculum objectives. This data is recorded on SIMS so staff are able to track pupil progress.

Assessment by standardised test and against National Curriculum judgements follows school policy. We prepare pupils for the KS1 and KS2 SATs so that they can achieve as well as possible. Each term we plan a formal review of the progress made by each pupil. At the end of Year 2 and Year 6 children will be given a scaled score where 100 means that they are working at age related expectations.

Learning across the curriculum

As teachers we need to ensure that mathematics contributes to learning across the curriculum in the following areas: key skills, spiritual, moral, social and cultural, thinking skills, financial capability, enterprise and work-related learning. We will do this by ensuring that these areas are addressed in our planning and teaching in a variety of ways. Mathematics contributes in major way to the key skills of communication, application of number, computing, working with others, improving own learning and performance and problem solving.

Equal opportunities

All the mathematics we work on shows positive images of the various groups in society. We seek to celebrate the mathematical heritage of all the cultures in the school and to recognise that the mathematics we do comes from all over the world.

Monitoring

The class teachers, the mathematics subject leaders and Senior Leadership Team will monitor the approaches detailed in this policy, in line with school policy. We will monitor using a variety of strategies including learning walks, lesson observations, staff discussions (staff meetings), and book and planning scrutinies. We work alongside the governors so they are aware of the good practice being followed.

Marking

In line with the school marking policy all work will be marked. We will achieve this using a variety of strategies including self- assessment, peer assessment and a thorough mark once a week. Next steps and questions will be written by the class teacher to support the children's learning.

Homework

In Key Stage 1 homework is handed out every three weeks and in Key Stage 2, homework is handed out every week (except when Brain Builders is set). The work which is sent home provides the children with an opportunity to revisit the skills they have been practising in school.

Special Educational Needs

In line with the school policy on Special Educational Needs, the SENCO, Mathematics subject leader and the class teacher will be involved in ensuring that pupils will have work planned to meet their needs. Classroom assistants will also provide additional support. Those pupils with significant needs in mathematics should have specific mathematical targets set when we produce their Provision maps. Training and resources are available to support Mathematics. The school is equipped with RM Mathematics and Mathletics, which are accessible in the ICT suite. RM Mathematics is particularly useful for SEN children [at either end of the spectrum] when used regularly. It tracks the children's progress through the Mathematics curriculum and provides instant feedback to teachers on successes and problems. When used for a long period of time, it gives children's progress through the NC levels of attainment. Identified Key Stage 2 are invited to attend an R.M Mathematics club run by the SENCO and Deputy Head.

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Next review – May 2019