

## Introduction

This policy outlines the teaching, organisation and management of the mathematics taught and learnt at Rollesby Primary School. The school's policy for mathematics is based on the 2014 revised National Curriculum Programmes of Study. The policy has been drawn up as a result of staff discussion and has the full agreement of the Governing Body. The implementation of this policy is the responsibility of all the teaching staff.

## What is Mathematics?

Mathematics is a tool for everyday life. It is a discipline in which patterns and relationships in numbers, shape and space and measurements are investigated. It is a whole network of concepts and relationships which provide a way of viewing and making sense of the world, solving practical problems, describing and communicating ideas.

Using the Programmes of Study from the National Curriculum, it is our aim to develop:

- ✓ a positive attitude towards mathematics and an awareness of the fascination of mathematics
- ✓ competence and confidence in mathematical knowledge, concepts and skills
- ✓ an ability to solve problems, to reason, to think logically and to work systematically and accurately
- ✓ initiative and an ability to work both independently and in cooperation with others
- ✓ an ability to communicate mathematics
- ✓ an ability to use and apply mathematics across the curriculum and in real life
- ✓ an understanding of mathematics through a process of enquiry and experiment

## School policy and the National Curriculum

### National Curriculum for Mathematics

The National Curriculum for mathematics aims to ensure that all pupils:

- Become **fluent** in the fundamentals of mathematics, including through varied and frequent practise 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.

### Breadth of Study

Through careful planning and preparation, we aim to ensure that throughout the school children are given opportunities for:

- ✓ practical activities and mathematical games
- ✓ problem solving
- ✓ individual, group and whole class discussions and activities
- ✓ open and closed tasks
- ✓ a range of methods of calculating e.g. mental, pencil and paper, formal and informal methods.

### **Teachers planning and organisation**

Our school planning takes a format used by all teachers and is completed on a weekly basis. This is developed from the National Curriculum Programmes of Study and takes into consideration the needs of our children.

Each teacher is responsible for the mathematics in their class in consultation with and with guidance from the mathematics coordinator.

We have recently introduced an extended maths lesson which now takes place daily for an hour and twenty minutes. This is to allow for development of ideas and extended practice and application of skills.

Organisation of numeracy lessons will follow the renewed Primary Framework for maths, timings and groupings varying according to the learning objectives and needs of the children. The length of the units of work vary according to the assessment of children's needs. Every lesson should include a problem solving aspect and will include the following techniques:

- ✓ Oral work and mental

This will involve whole-class work to rehearse, sharpen and develop mental and oral skills.

- ✓ Teach / practise / review

This will vary depending on how far through the cycle of learning the children are. Lessons may have: a teaching focus; a focus on children practising the strategies they have been taught or children will be using and applying their knowledge in problem solving / 'real-life' activities. Teaching and learning will be enhanced through the use of models and images, allowing children to learn in a more concrete format before moving onto pictorial and abstract.

- ✓ Plenary

A plenary may take place during any part of the lesson. This will involve work with the whole class to sort out misconceptions, identify progress, to summarise key facts and ideas and what to remember, to make links to other work and to discuss next steps. It is helpful for the lesson to be interspersed with summaries or small plenaries with the whole class to assess, review and move pupil's thinking on.

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Children are taught within mixed ability classes, with tasks organised into 'challenges' which are differentiated according to ability. Often children are directed to choose the challenge with which they feel confident, and this allows them to extend their learning without a 'ceiling'.

### **Intervention:**

To support those children who are below expected progress, additional small-group intervention is provided, on top of normal class teaching. In addition, intervention may be offered to children who are identified as working above expected progress, in order that they can exceed their targets. The school is currently using an intervention programme called '1<sup>st</sup> class @number' in KS1 and lower KS2.

### **Special Educational Needs**

Teachers will aim to include all pupils fully in their daily mathematics lessons. All children benefit from the emphasis on oral and mental work and participating in watching and listening to other children demonstrating and explaining their methods. However, a pupil whose difficulties are severe or complex may need to be supported with an individual programme in the main part of the lesson.

Through assessment, teachers will identify any children who are achieving below their expected levels. These identified groups of children will be supported through small group work, working towards the same programmes of study as their peers, at an appropriate level.

### **Homework**

The daily mathematics lessons will provide opportunities for children to practise and consolidate their skills and knowledge, to develop and extend their techniques and strategies and to prepare for their future learning. These will be extended through weekly homework, which allows children to further deepen their understanding of core strands in mathematics. The school uses 'Mathletics' which is a computer programme designed to practise the skills taught in school. Children are able access this at home and complete weekly differentiated tasks set by their teacher.

### **Resources**

A variety of resources are made available to children in order to support them in developing their understanding of key concepts. This includes use of Numicon, Number lines and squares, bead strings, multi-link, place value cards, fraction walls, Interactive Teaching Programmes (ITP's) and many others.

### **Methods of Recording**

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There are occasions when it is both quick and convenient to carry out written calculations. It is also important to record aspects of their mathematical investigations. Children are taught a variety of methods for recording their work and they are encouraged and helped to use the most appropriate and convenient method of recording.

Children are encouraged to use mental strategies before resorting to a written method. Mental work does not exclude a written record. It should be noted that jottings and rough workings do not need to be set out with the same formality as standard written methods.

All children are encouraged to work tidily and neatly when recording their work. When using squares one square should be used for each digit. Children will work in pencil, although may record their workings out in a suitable pen. Titles will reflect the learning objective of the lesson. Dates and titles should be underlined with a ruler.

### **Marking**

The children can mark their work, although this should also be checked by the teacher. Errors should be marked with a '.' (dot) and new answers shown in an appropriate place. Marking in pink shows the children 'What Went Well' in their work. Marking in green shows the children their next steps, 'Even Better If...'

SIT time is given at a teachers discretion to allow children to review their work, check their next steps and make any corrections needed. This is to be completed in a purple pen.

Marking should be both diagnostic and summative and this at times this may be best done through conversation with the child - although constraints of time do not always allow this. For further detail, see the school marking policy.

### **Assessment and record keeping**

Informal assessments will be carried out as part of the daily lesson to check children's understanding and should be used to inform the daily lesson plans. This will be achieved through questioning, discussion, observation and marking work.

Learning ladders are used to record a child's progress against the objectives and identify gaps in learning to inform future planning.

Classes make use of unit assessments at the beginning and end of each unit of work to monitor progress of the pupils in their class and to identify the areas for development when objectives are revisited.

Termly assessments will be carried out by the class teacher to monitor each child's progress, including an arithmetic assessment and a reasoning assessment. These assessments should be used both diagnostically and for reporting purposes.

For further detail, see the School Assessment Policy.

### **The role of the co-ordinator**

- ✓ Ensure understanding of the requirements of the National Curriculum for Mathematics
- ✓ Lead by example in the way of teaching in own classroom
- ✓ Prepare policy documents and schemes of work as necessary
- ✓ Advise colleagues, help develop expertise and monitor the planning and teaching of maths throughout the school
- ✓ Encourage the development of valid maths activities that are appropriate, differentiated and enable progression
- ✓ Encourage use of ICT as appropriate in supporting teaching/motivating pupils
- ✓ Work co-operatively with the SENCO
- ✓ Contribute to the in-service training of staff