



The Dragonfly Federation

East Ruston and Stalham
Infant and Pre-schools

A Flying Start for all



MATHEMATICS POLICY

INTRODUCTION

Mathematics is the method by which children learn to describe and quantify their own environment and come to terms with the practicalities of the real world. The status of Mathematics as one of the core subjects reflects its importance and highlights the need for children to acquire the skills and knowledge necessary to make judgements about the environment in which they live.

The implementation of this policy is the responsibility of all teaching staff.

THE NATURE OF MATHEMATICS

Mathematics is a complex subject that asks children to be familiar with basic number concepts, acquire skills to solve problems of a practical nature and to apply their skills and knowledge to a wide range of problems solving situations in the form of investigational mathematics. In common with any subject areas, Mathematics also require the attitudes necessary for independent and cooperative work.

The important aspect of the Mathematics curriculum is that it should be relevant to the needs of the children and, where possible, should be applicable to the environment in which they live.

Mathematics at Stalham Infant and East Ruston Infant Schools are taught in line with the Curriculum including:

Using and applying Mathematics
Number
Measurement
Data Handling and Statistics

Mathematics also has cross-curricular links such as Science and Technology and is taught in conjunction with the National Curriculum targets for Information Technology. Under the new curriculum mathematics will be linked cross-curricular with the new topics.

OBJECTIVES

The teaching of Mathematics is planned to provide a balanced delivery of the subject and our aim is to develop the knowledge, skills and attitudes necessary for children to be able to :

- * become fluent in the fundamentals of mathematics
- *work confidently with numbers in a wide variety of situations
- *reason mathematically by following a line of enquiry, conjecturing relationships and generalisations and developing an argument with mathematical language
- * use and apply the skills of practical measurement
- * make sense of their world and understand the way in which Mathematics plays a part in everyday life
- * solve problems in a range of investigational situations
- * develop as increasingly independent and organised learners
- * cooperate with others
- * use mental images and relationships to support mental calculation
- * explore through practical activity and discussion

The key stage 1 programme of study for mathematics is divided into sections on Number (largest section), Measurement, Geometry and Statistics (from Year 2 only).

Using and Applying Mathematics

We aim for children to become all round mathematicians who are taught the skills, methods and knowledge to apply to real life problems. Children will need to solve a range of number based problems that will develop their mathematical concepts and skills. They should be able to choose methods and materials. They will need to develop a range of strategies to overcome problems in open ended tasks including the ability to look for and use patterns, predict and use systematic methods of working and recording. The children will need to discuss, communicate and record their findings. They will need to apply logic and reasoning to find solutions. Combined with this, children need to show cooperation, flexibility and perseverance in their work. To increase the challenge particularly in Year 2, the '**Lets think through maths**' programme is used. This programme is designed to encourage **thinking skills** and using and applying skills for **problem solving**. The use of Maths Whizz from the beginning of Year 1 is used to improve pupils independence and mathematical development. Where applicable children will apply their mathematical skills within topic work.

Number

The school aims to develop the concepts of number in a way that will enable children to become familiar with their use in a concrete situation and to use abstract notation to represent problems in everyday life. Children need to acquire knowledge of number facts and to increasingly manipulate these numbers in a variety of situations. During the course of their work, children will be encouraged to choose from a wide range of methods and materials for solving problems. It is vital that the children become familiar with and gain confidence in the use of number for them to become flexible thinkers, It is also important that children do not see numbers in isolation but

gain practice in their use in everyday life. In line with the new National Curriculum greater emphasis is being placed on the basics of number and application of number skills. For example, in Year 1 children will be expected to count up to 100 rather than 20, they will be expected to know addition and subtraction facts to 20 and there will be an emphasis on using formal written methods for addition and subtraction. In Year 2, pupils will be expected to fluently recall number facts to 20, recognise and write fractions and use formal written methods for multiplication and division.

Measurement

There are a wide range of skills that children need to acquire if they are to understand how their environment is fitted together. The teaching of practical Mathematics aims to give progression of skills from ordering, comparing and sorting to applying a suitable technique to solving a physical problem. Children will need to understand the properties and uses of shape along with the notion of movement and direction. Children will be expected to use their skills in cross-curricular problems including Geography, Science and Technology. The appropriate use of equipment is also important for children to work effectively.

Data handling and Statistics

It is important that children are able to collect and use information about the world in which they live. Again, there are strong cross-curricular links that give a context to the task in which children are asked to choose from a range of methods of collection and recording and draw inferences from their activities.

IMPLEMENTATION

Mathematics is implemented in line with the Teaching and Learning Policy of the Dragonfly Federation. In line with the new National Curriculum mathematics at both the schools are organised on a year by year basis and covers the programmes of study by the end of each key stage.

The programmes of study give a broad outline of the areas to be covered by each year group. The new National Curriculum covers all aspects of Mathematics including number, practical and investigational tasks. Wherever possible planning will be contextual drawing on the child's experience of life. The school recognises the wide range of abilities including children with Special Educational Needs. As a result, Mathematics is taught in accordance with the Special Educational Needs policy of the school and aims to differentiate to suit the needs of the individual including extension activities where appropriate for the more able pupils in each year group. The 'Lets think through maths' and Mathletics programmes have been designed to identify and assess all learners and to offer opportunities for pupils to show how they are thinking and for teachers to assess progress as the children work.

Using and applying Mathematics

In order to teach the full range of problem solving, children are exposed to a wide variety of mathematical experiences. These tasks will generally be of an open ended nature in which children will be allowed to progress to their own level. They will be encouraged to co-operate and exchange ideas to solve and check problems.

A balance of practical, logical and numerical problems will be posed giving children the opportunities to make decisions and find solutions.

Number

Number is taught in such a way as to provide appropriate activities to develop children's understanding for the range of abilities. It is recognised that children in the early years of education need a practical and relevant approach. Number concepts are taught, initially, in a concrete way to provide physical manipulation of materials and then slowly adapted to a more abstract method of computation. Children are taught a variety of methods for solving numerical problems for them to be able to choose the appropriate course of action in the future. As far as possible, a context is provided for the activity from the everyday life experiences of the children. This also provides a valuable method for introducing the specific language associated with number. An example of this may be use of shopping to develop the concepts of addition and subtraction. Eventually, children will need to be able to recall number facts and apply their knowledge of number to problem solving situations and to acquire more complex mental strategies.

To reflect the fluidity of the National Curriculum teaching staff will use their knowledge of the needs of the children in their class to plan personalised lessons. Both schools focuses on the learning objectives and impact of teaching on learning as opposed to prescribed lesson formats. Consequently, children will be taught according to their individual needs and the teaching staff will seek to address observed difficulties and reinforce the learning objective within lessons. The work will be differentiated into ability groups and supported, where possible by the class assistant.

Mental skills and language are reinforced in the oral/mental the National Curriculum. The school recognises the value of the active involvement of the children and the practical nature of these sessions wherever possible.

Measurement

As with number, the teaching of practical Mathematics must have a context that is relevant to the experiences of the children. They will be asked to sort, order and compare in all aspects of practical Mathematics. Children will develop a progression of skills in areas such as capacity or weight. They will also be taught the use of appropriate equipment and be given problem situations in which to apply their skills. Once children recognise the need for standard measure, they will be encouraged to used units of measure to quantify their work. As with investigational work, children need to develop the necessary attitudes to be able to work co-operatively as well as exchange ideas. These skills are acquired in a cross-curricular way, particularly through PE and drama.

Within shape, children are encouraged to observe the properties of shape and their uses in the technological world, each aspect may be returned to throughout the year.

Data handling and Statistics

Children will be taught methods of sorting and organising data that they collect in the course of their work in other subjects. Again emphasis is placed on the experiences

of the children as such opportunities for data handling are usually of a cross-curricular nature. Data collection will include the use of diagrams, charts, graphs and tick lists and the use of computer programmes to store and interrogate.

ASSESSMENT AND RECORDING

Assessment of the Mathematics curriculum is carried out in line with the school's assessment policy using **Assessing Pupil Progress** (APP) materials, Mathletics, personalised assessments and teacher assessments. This is part of **Assessment for Learning** which is implemented in key stage 1.

The information gathered is recorded on APP documents which are used to inform leveling of pupil attainment on the **pupil tracker**. This is completed termly following whole staff moderation of samples of pupils work. The tracker enables teachers to identify the next steps of learning for individual and groups of learners. It highlights those pupils who are exceeding pupil expectations and those who require extra support. The **marking policy** enables pupils to be involved in their own assessment. (see separate policy)' **I can**' statements are used to set realistic but challenging targets and these are recorded at the back of pupil books for easy reference.

THE USE OF ICT

The use of ICT to support and enhance Maths development in school is seen as an integrated and significant part of the work completed in the classroom. Teachers make full use of such programmes as espresso and multi skills number development. Maths Whizz has also been purchased. This is a programme designed to accelerate pupil learning in maths and parents are encouraged to support pupils at home in this way. More information about this programme can be obtained on request.

MONITORING AND EVALUATION

Monitoring of the Mathematics curriculum is carried out by the Leadership and Management Team who are responsible for coverage, progression and continuity throughout the school This is done by observing practice in the classroom, by observing teaching plans and informal interviews with pupils. Evaluations are carried out in terms of good practice, the delivery of the National Curriculum and analysis of tests, tasks and evidence that supports teacher assessment at the end of key stage 1. The Leadership and management Team are also responsible for informing governors through the curriculum committee, the school improvement plan priorities where applicable and by liaising with the designated link governor.

Resources

Resources are stored mainly in the upstairs store room but everyday items are kept in each classroom. Each child is given access to a wallet which contains a white board, pen, rubber, number square and number line.