



## **Mathematics Policy**

### **1. Aims**

The major aim of teaching mathematics is to promote children's **understanding** of basic skills and concepts and be able to apply them to become more confident and independent mathematical thinkers.

It is our intention, through fostering their understanding of mathematics and seeking to develop mathematical thinking as well as problem-solving approaches, to equip them sufficiently to cope with the mathematics that they will meet in **real life**.

We actively seek to promote this ongoing process through effective and enthusiastic teaching and learning; we seek to increase curiosity and intrinsic enjoyment of mathematics through the ability and confidence to apply their mathematics to solving problems and foster developmental strategies.

It is our ambition to provide the children we teach with meaningful mathematical experiences and opportunities that are relevant to the world in which they live and in a context that provides purpose and meaning; purposes which allow for differences in individual style as well as uniformity and coherence of subject matter. We also aim to develop children's awareness and appreciation of mathematics itself, in the context of promoting an intrinsic value that can be gained from 'doing' mathematics.

Our basic aims therefore are to ensure all pupils:

- understand important concepts and make connections within mathematics
- show high levels of fluency in performing written and mental calculations
- are taught consistent calculation strategies
- are ready for the next stage of learning
- have a smooth transition between phases
- are able to add, subtract, multiply and divide efficiently
- are competent in fluency, reasoning and problem solving.

## 2. Objectives

The immediate objectives around which our programme has been progressively built are as specified in 'Mathematics in the National Curriculum 2014' designed to “support and increase all children's access to excellent teaching, leading to exciting and successful learning”, specifically to develop skills, competence and understanding in the strands of objectives of the National Curriculum:

**Using and applying mathematics**

**Number**

**Geometry**

**Measure**

**Statistics**

The school now adopts the provisions of the National Curriculum in full, with its emphasis on direct oral teaching, clarity of structure, thorough planning, consistency of approach, sound progression and high expectations.

The Key Objectives as set down for each year group will be adhered to in the majority of set groups as far as is possible in the promotion of mathematical understanding, having first taken full regard of the child's level of operation and stage of development. It is intended that the acquisition of skills in these areas will be most effectively achieved when **direct teaching supported by practical developmental opportunities** is employed and when an appropriate balance within these approaches is achieved. The objectives of individual lessons will be clearly defined and set down on medium and weekly planning sheets.

All National Curriculum Attainment Targets will be kept in good **balance**, with frequent **links** between them, effectively demonstrated in accordance with the child's or group's stage of development in relation to the Strategy.

The **pace** of lessons will equally take appropriate account of the child's stage of development, but a brisk pace with well-defined tasks at all levels will be maintained. Above all, the over-riding objective of successful teaching and learning will be viewed in the context of challenging pupils to extend known abilities across the whole range of operation; challenges which encourage pupils to develop their range of skills and make sensible approaches and decisions on the confident tackling of problem solving activities. Mathematic lessons should take place everyday and last for approximately one hour, they should include a short mental starter, a main teaching session with plenty of time for children to carry out independent work with time to reflect on good work and correcting mistakes (please see school marking policy). An extra session of 'Number Sense' will also be carried out daily in each class for further opportunity to develop fluency, reasoning and problem solving skills around number. These sessions will be presented in a way that the class teacher feels is appropriate for the needs of their pupils.

### **3. Teaching Style**

It is intended that mathematics teaching at all levels should include opportunities for:

- Creating positive attitude towards mathematics and developing confidence in children's mathematical skills.
- daily oral and mental work;
- oral exposition by the teacher;
- discussion between teacher and pupils and between pupils themselves;
- frequent opportunities for the consolidation and practice of fundamental skills and routines, especially in oral and mental work;
- problem solving, including the application of mathematics to everyday situations; Using maths in a wide variety of contexts;
- investigational work - describing, exploring, examining patterns for relationships, systematizing, hypothesizing, predicting, generalising, recording, explaining & communicating;
- become fluent, be able to reason and problem-solve across a wide-range of contexts in mathematics.
- using computers extensively in both group-led and individual sessions to initiate and solve problems and acquire skills as well as to present their work;
- regular practice in mental operations and calculator activities.
- Self-assessment and the opportunity to correct and amend work accordingly.

All lessons should have clearly defined *Learning Objectives*, as well as achievable *Success Criteria* for all pupils.

A high priority has traditionally been placed on the **integration of investigational activities and the use of puzzles and problem solving strategies** into the acquisition of skills over recent years. The use of a wide variety of contexts, based on real-life situations, are to be used across all year groups.

Schemes of work should identify the opportunities for pupils to undertake worthwhile problem solving activities. The importance of an investigational approach is highlighted. Investigations and problem solving strategies must draw on and will contribute to pupils' knowledge and understanding. As pupils' understanding increases, so will the range of problem solving activities they can undertake.

It follows that the nature of investigational and problem solving work at all levels should be **progressive**, continually building on and reinforcing previous experience. Problem solving activities which allow pupils to use previously taught concepts sufficiently well to allow them to carry out an problem (which) should therefore be based on the use of concepts with which pupils are familiar.

#### **4. Organisation**

Children are taught in mixed year/ability. It is the class teacher's responsibility to appropriately plan and organise their mathematics lessons to ensure all pupils can achieve. The teacher is responsible for the monitoring of achievement through termly assessments and through the use of the online pupil tracking system.

Mathematics planning is covered by means of medium term and weekly planning sheets which follow the objectives and examples laid out in the teaching block for the period within the Framework. Each class, however, is very different and teachers need to be adaptable to their classes needs.

Short-term planning is carried out by individual Teachers on a weekly basis, using their preferred planning method.

Teachers should also use White Rose, NCETM and Nrich resources to ensure there are plenty of opportunities to develop their fluency, reasoning and problem-solving abilities. Daily 'Number Sense' sessions are to be carried out in each class to provide further opportunities to develop fluency, reasoning and problem solving skills.

#### **5. Children with Special Educational Needs**

All children should have equal opportunity to achieve, and as much as possible, surpass their potential. It is, however, recognised that some children have specific issues that may affect their ability to learn at the same pace as others. We seek to alleviate such problems primarily through the expertise of dedicated and professional teaching staff within the context of a smaller 'set' group. Individual programmes, reinforced by individual attention representing the key to success and future progress. Programmes are pitched appropriately to the ability level of the child in relation to the required levels expected by the National Curriculum. Additional resources are provided, particularly by reference to the supplements of examples at or within one year of the child's chronological age, but, in more extreme *Barriers to Learning* cases, as close to the one year differential as possible. Intervention opportunities are monitored and reviewed regularly, normally every half-term.

#### **6. MANAGEMENT OF MATHEMATICS**

##### **Role of the Subject Leader**

- Monitor the teaching of mathematics by carrying out yearly audits of books;
- Ensure the calculations policy is accessible to all children, giving them every opportunity to progress and become confident mathematicians;

- Ensure teachers are familiar with the framework and provide resources where necessary;
- Lead by example in the way they teach in their own classroom;
- Prepare, organise and lead INSET, with the support of the Headteacher;
- Work co-operatively with the SENCO and individual class teachers to identify areas of weaknesses, both in individuals and as a whole school;
- Observe colleagues from time to time with a view to identifying the support they need;
- Attend Local Maths Leadership Meetings;
- Discuss regularly with the head-teacher and numeracy governor the progress of implementing the Strategy in the school.

#### Role of the Mathematics Governor

- To visit the school regularly to talk with the teachers and when possible, observe some of the daily mathematics lessons;
- To attend any relevant inset or training.

#### Role of the Headteacher

- Lead, manage and monitor the implementation of the framework, including monitoring teaching plans and the quality of teaching in the classrooms;
- With the maths governor, keep the governing body informed about the progress of the framework;
- Ensure that mathematics remains a high profile in the school's development work;
- Deploy support staff to maximise support for the framework.

### **7. Teaching Priorities**

- the consistent demonstration of well-understood skills;
- the acquisition of mental calculation skills, including the learning of multiplication tables and their related division facts;
- the acquisition and confident application of a range of calculation strategies in a variety of contexts (all teachers to follow school calculation policy);
- continual development of fluency across all areas of mathematics;
- plenty of opportunity for children to reason and problem-solve across a wide variety of contexts;
- clearly defined objectives and success criteria and, where appropriate, differentiated planning;
- the consistent use of correct vocabulary and notation, imparted to pupils and appropriate to their stage of learning;
- encouragement of discussion, demonstration and explanation in oral work, with well-focussed questioning linked to a variety of resources and stimuli;

- flexible approaches to organising a lesson which take account of differentiated activities where appropriate, to achieve high standards;
- applying learned skills effectively in problem solving situations;
- the development of increasingly independent thought and working in problem solving activities and in the assimilation of skills;

The provisions of the National Curriculum will continue to form the central resource for the teaching of Mathematics, providing continuity as well as a structured hierarchical framework to the teaching and learning process. The National Curriculum is the starting point of all planning and teaching.

## **8. Methods of Assessment & Records of Achievement**

Assessment of children's work and the monitoring of their progress represent an ongoing task throughout their school career. We seek to assess work in a constructive context, striving to discover what has been learned and current levels attained with a view to planning by identifying future needs, both strengths and weaknesses; assessment is consequently an aid to continuity. Regular target setting is vital and as children move up the school they should be able to self-assess and create their own individual targets. Formal tests include standardised / national tests which assess pupils' ability to remember and interpret relevant mathematical knowledge and apply that knowledge in the solving of problems.

Informal assessment will take account of tangible evidence in the form of teacher-devised tests (eg. mental operations), quick class tests, continuous assessment of levels of consistency and accuracy in ongoing course work, as well as more subjective assessment of such elements as attitude, approach, participation orally and socially, concentration levels, level of independence, and levels of competence and confidence in the use of equipment, including calculators and computers.

In this way we aspire to assess pupils' ability to demonstrate the skills and operations necessary to achieve the required results, to show a basic understanding of what they are doing, to demonstrate the confidence necessary to succeed in problem solving and investigational work, and to be able to apply their mathematical skills confidently to work in other subjects where the role of mathematics makes a fundamental contribution.

Assessment is carried out in all of the major areas of activity. Both children's knowledge and understanding of mathematics and their application of that knowledge are monitored by the above strategies and reported to parents. Pupils' records of achievement are retained and stored either in their work exercise book which is classroom based, or centrally in their progress files.

Records include:

standardised tests taken or received from feeder/previous schools;

regular assessments based on the defined objectives in the National Curriculum using

tests used across all the West Norfolk Academy primary schools.

informal investigations and problem-solving topics which are integrated into more formally taught areas of study

a sample of children's work demonstrating fluency, reasoning and problem-solving.

A **Mathematics Action Plan** is completed annually within the School Improvement Plan.

For pupils identified as falling short of the required level of operation, **intervention** sessions are introduced and closely monitored to ensure these children make sufficient progress.

All policies should be cross referenced with the SEND, Inclusion and Equality Policies which are available on the school website: [www.snettisham-primary.co.uk](http://www.snettisham-primary.co.uk)