

## Mathematics Policy

### Philosophy

We believe that mathematics is concerned with the nature of numbers and space, pattern and relationships. It is a creative activity requiring not only acquisition of facts and skills, but also understanding gained through exploration and application.

Mathematics is a tool for everyday life and we believe that a broad mathematical education is essential for children's future learning and to equip them to meet confidently the responsibilities of adult life.

### Aims

Our aim is for our pupils to develop:

- a positive attitude towards mathematics and an awareness of its fascination
- 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
- perseverance, initiative and an ability to work both independently and in cooperation with others
- an ability to discuss mathematics and, explain and give reasons for their thinking using technical vocabulary
- an ability to use and apply mathematics across the curriculum and in real life

### The Mathematics curriculum

We teach using the Primary Framework for mathematics, which covers the National Curriculum for mathematics. The Framework focuses on seven strands:

- Using and applying mathematics
- Counting and understanding number
- Knowing and using number facts
- Calculating
- Understanding shape
- Measuring
- Handling data

We plan from the Primary Framework. Each year of Key Stage 1 and Key Stage 2 is structured around five blocks of work which are further divided into three units of work with one unit from each block being taught each term. The objectives and teaching overviews from these units are adapted to meet the needs of children in each class. Mathematics planning in the foundation stage is based on the objectives from the Primary Framework and the EYFS document.

ICT is used a tool for learning for mathematics. Every classroom has an interactive whiteboard, visualiser and internet access. Children also have access to laptops when required.

We plan for cross-curricular opportunities to develop and apply mathematics. Children use mathematical skills particularly in lessons such as PE, geography, DT and science.

Calculators are used throughout the school where appropriate but as a calculating tool only in Upper Key Stage 2 or where children are problem solving using real life numbers that are above their computational level. Calculators are a powerful tool for teaching about how our number system works and as such may be used in KS1 and early KS2.

Display is used as a means of reinforcing and promoting mathematics in school.

Objectives relating to mathematics are frequently included in Learning Logs, with mathematics curriculum targets objectives being addressed at least once a month.

Staff have regular access to training in the curriculum and teaching methods through LEA courses and in-school professional development opportunities.

### **Teaching and Learning**

All children in KS1 and KS2 have a daily mathematics lesson of between 45 and 60 minutes. In the foundation stage, children experience mathematics every day, with three formal numeracy lessons each week and additional whole class sessions focussing on counting and numeral recognition.

Most lessons are based on a three-part structure:

- Oral/Mental starter - the children practise known skills to develop fluency and accuracy. We use games and activities to extend counting skills, number bonds and multiplication tables, calculation strategies and other aspects of number, shape, measures and data handling.
- Main part of the lesson - the children address the key learning of the lesson. We teach the whole class in an interactive style, addressing the

different learning styles of the children and involving the children in discussing, explaining and reasoning about their learning. During this part of the lesson the children will usually practise or extend their learning through individual, group or whole class activities that are differentiated to cater for the levels the children are operating at. Lessons, such as playing games, discussion and investigation (with informal jottings), may not always result in written outcomes.

- Plenary - this part of the lesson is where the children reflect on their learning. By enabling the children to talk about what they have learned and how this can be used, applied or improved upon has a powerful effect on children's ability and motivation to learn.

Teachers can choose their own planning format which must, in addition to the school's general planning requirements, include:

- A weekly overview sheet showing the block title and coverage of the block objectives
- Objectives relating to the mathematics Curriculum Targets at least twice a week (annotated with **CT** on planning sheets)
- Copies of question sheets, paper resources and interactive whiteboard slides
- Identification of weekly 'Pink and Green' lesson

### **Special Educational Needs**

Children with SEN are taught within the daily mathematics lesson and work is differentiated appropriately to meet their needs. Teachers not only provide activities to support children who find mathematics difficult but also ones that provide appropriate challenges for children who are high achievers in mathematics.

When additional support staff are available to support groups or individual children, they work collaboratively with the class teacher.

### **Equal Opportunities**

All children have equal access to the mathematics curriculum regardless of gender, ethnicity or ability.

For children with English as an additional language, support with developing their mathematical vocabulary is given through 'Talking Maths' and further group sessions with support staff.

## **Resources**

We do not use any one published scheme, but draw on a range of published materials and resources to supplement our ideas and those in the Primary Framework for mathematics

All classes have access to number lines and grids, and small equipment such as number cards, fans, counting apparatus, dice and calculators. Each Foundation and Key Stage 1 class has its own Numicon resources. Larger practical equipment is kept centrally to be used as required.

Children are encouraged to decide for themselves which apparatus they require and resources are stored to allow them this access.

## **Assessment and Recording**

Children are assessed formally at the end of the Foundation Stage, Key Stage 1 and Key Stage 2. The EYFS profile is used for teacher assessment at the end of the foundation stage. At the end of Key Stage 1, the teacher assessment is informed by mathematics tasks or tests. At the end of Key Stage 2, in addition to the teacher assessment, the children take the National Tests.

Furthermore, we use the optional QCA tests termly in Years 3, 4 and 5 and past SATs papers in the autumn and spring terms for Year 6. Based on these, each class teacher identifies common errors and misconceptions which are used by the mathematics subject leader to identify the mathematics curriculum targets for the subsequent term.

Children are continually assessed, and records made at least half-termly, against objectives on the Assessing Pupil Progress (APP) sheets, which are used to inform planning. Every term children's levels for each attainment target are input to the school's teacher assessment spreadsheet and an overall level for each child is generated for submission to Target Tracker. Children who are failing to make expected levels of progress are then identified during Provision Map meetings, through which appropriate support or interventions are identified.

Mathematics curriculum targets are generated termly and are clearly displayed in each classroom. Children and their parents are informed of the target towards which they are working. These targets give us the opportunity to involve children in assessing their progress and sharing their success with them.

Every half term, children in Key Stage 1 and 2 undertake minute tests which are used to assess their progress in rapid recall of number facts, which they are

motivated to learn through use of number recall cards both at school and at home. These cards not only focus on recall of number bonds, doubles and times tables but also related facts and a wide range of mathematical vocabulary.

In Key Stage 2, children undertake mental maths tests on a two or three weekly cycle. After taking a test, the class' areas of strength and weakness are identified and used to inform planning for the oral/mental starters for the following two/three weeks. The children are then retested and their progress is recorded.

Children are involved in self or peer assessment against child-generated success criteria weekly in Key Stage 2 and Year 2, and fortnightly in Year 1 through 'Pink and Green lessons'.

### **Monitoring**

The mathematics subject leader and/or the Headteacher monitor mathematics through the school by:

- Examining teachers' planning
- Scrutinising childrens' books
- Observing mathematics lessons
- Talking to children and teachers about mathematics in school
- Analysing tests to identify strengths and weaknesses across the curriculum
- Termly tracking using Target Tracker

These evaluations inform our next steps in reviewing our provision and identifying staff development.

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