

Cottesbrooke Infant School

Mathematics Policy

28th January 2013

Introduction

Mathematics teaches us how to make sense of the world around us through developing a child's ability to calculate, to communicate, to reason and to solve problems. It enables children to understand and appreciate relationships and pattern in both number and space in their everyday lives. Through their growing knowledge and understanding, children learn to appreciate that maths can be an exciting and stimulating subject to learn which has relevance to their own everyday lives.

At Cottesbrooke Infant School, we provide a broad and balanced curriculum for all children. We encourage children to reflect on their learning, sharing targets, objectives, and talking about and discussing their learning. Teachers, children, parents and governors are all working together to raise standards for all our children.

Aims and objectives

The aims of mathematics are:

- to promote enjoyment, enthusiasm and motivation for learning through practical activity, exploration and discussion;
- to promote confidence and competence with numbers and the number system;
- to promote decision making through the selection of appropriate strategies;
- to develop the ability to solve problems in a logical way through decision-making and reasoning in a range of contexts;
- to develop a practical understanding of the ways in which information is gathered and presented;
- to explore features of shape and space, and develop measuring skills in a range of contexts;
- to be aware of the patterns and relationships in the structure of mathematics developing connections;
- to understand the importance of mathematics in everyday life and its links with other areas of the curriculum.

Teaching and Learning

The school uses a variety of teaching and learning styles in mathematics lessons. Our principal aim is to develop children's knowledge, skills and understanding in mathematics. We do this through a daily lesson that has whole class, group, independent and direct teaching. During these lessons we use modelling and demonstration in order to engage the children in asking and answering mathematical questions. We ensure that children have the opportunity to learn in a variety of ways using and developing their visual, auditory and kinaesthetic skills. They have the opportunity to use a wide range of models and images such as number lines, number squares, digit cards and small apparatus to support their work. Children use ICT in mathematics lessons when it will enhance their learning, as in modelling ideas and methods. Wherever possible, we encourage the children to use and apply their learning in everyday situations and practical tasks in order to make it relevant to their experiences. For further information about the schools policy on recording in maths see Calculation Policy.

Mathematics is taught according to each child's ability. This may be done through individual, group or class work as appropriate. At KS1 and EYFS, children have the opportunity to work with those of a similar ability as well as mixed ability groupings which help to develop mathematical language and thinking. We achieve this through a range of strategies, in some lessons through differentiated group work and in other lessons by organising the children to work in pairs on open-ended problems or games. Work is matched carefully to the needs of individual children offering a challenge so that they can reach their potential. Teaching Assistants are often used to support some children with specific targeted work. Every child is encouraged to achieve

his/her full potential regardless of race, religion, gender, culture or ability. Excellence in Mathematics is celebrated with display around the school. We also have a celebration assembly where children will receive certificates for superb Maths work.

Planning

Planning is undertaken at three levels:

Long term planning is based on the yearly teaching programmes set out in the Frameworks.

Medium term planning is carried out half termly. Teachers select their main teaching objectives from the yearly teaching programme and ensure a balanced mathematics curriculum.

Short term planning is carried out daily/weekly. These plans include learning objectives for mental oral starter and the main activity, differentiation, resources to be used and key vocabulary.

In Foundation Stage we teach Mathematical Development using the objectives set out in the Early Years Foundation Stage framework, which underpins the curriculum planning. Staff ensure that there are opportunities for individual, group and whole class learning and take into consideration the varying needs and levels of development of the children. Teachers plan structured activities as well as time for child initiated activities, which enable the children to practise skills, gain confidence and competence in their use. We provide all the children with a wide range of opportunities to develop their understanding of number, measurement, pattern, shape and space through varied activities that allow them to enjoy, explore, practise and talk confidently about mathematics. Throughout Foundation Stage, children are also encouraged to use and develop mathematics through play in all areas of provision. A range of mathematical resources, such as number lines and Numicon are available throughout. Concepts of shape, space, direction, size, length, capacity and mass are developed through sand, water and tactile play, outdoor provision, small world play, storytelling and nursery rhymes.

Mathematics is a core subject in the National Curriculum and in KS1 and we carry out the curriculum planning in mathematics in line with the structures and recommendations outlined in the Renewed Framework for Mathematics. Our unit plans list the specific learning objectives and success criteria for each lesson and give details of how the lessons are to be taught. We use supporting materials from the Abacus and Oxford schemes of work. Weekly plans for all lessons have clear learning objectives based on the teacher's detailed knowledge of the needs for the children. Planning is flexible and responsive to the learning taking place in lessons. The planning structure for each year in KS1 is organised into five blocks. The structure is the same for each year group. A block is designed to cover the equivalent of 6 weeks or 9 weeks of teaching. Each block has incorporated into it objectives from the Using and Applying mathematics strand and from two or three of the other core strands.

The blocks are:

- Block A: Counting, partitioning and calculating
- Block B: Securing number facts, understanding shape
- Block C: Handling data and measures
- Block D: Calculating, measuring and understanding shape
- Block E: Securing number facts, relationships and calculating

Where possible staff make cross curricular links with maths in other lessons. If this is not possible then units of work will be planned separately to cover the maths work. Some times Shape, Space and Measure blocks will be planned on their own. More emphasis however is placed on the teaching of calculation through everyday situations.

Cross Curricular links

Children are encouraged to investigate connections between Mathematics and other areas of learning. The skills, concepts and knowledge learned in Maths lessons are reinforced, consolidated and extended within the whole curriculum. At the beginning of a new topic staff identify cross curricular links to other subject areas taught.

For example Science also involves the use of many Mathematical skills. Children will measure using standard and non-standard measures as well as collecting, classifying and recording data. Art and Design Technology require children to investigate and understand pattern, space and shape. History is dependent upon children understanding chronological order, ordinal vocabulary and the correct use and reading of dates. Religious Education requires children to order and sequence events. The understanding of position and direction is a key geographical skill and is important within Physical Education.

Inclusion

All pupils will have an equal opportunity to reach their full potential across the Mathematics Curriculum regardless of their race, gender, cultural background, ability or of any physical or sensory disability. The school makes provision to support children with SEN on an individual basis to enable every child to access the Mathematics curriculum and is reviewed termly (see SEN Policy). Support may include the use of an adult, differentiated or scaffolded activities, support programmes and interventions such as First Class at Number.

More Able Children

Quality first teaching principles, based on good day to day assessment and challenge for all are the starting point for our provision for the More Able. The school keeps a register annually of any pupils who are More Able in Mathematics which is reviewed termly in discussion with the child, parents/carers, class teaching staff and others where relevant. Individual needs are taken into account and their particular strengths and areas for development are planned for. Children who are working above the overall level of their class or group will be engaging with a range of experiences designed to broaden or deepen their learning while still working on the same or similar aspect of Maths as their peers.

Assessment, Recording and Reporting

At Cottesbrooke Infants we recognise that Assessment for Learning lies at the heart of promoting learning and in raising standards of attainment. We further recognise that effective Assessment For Learning depends on using the information gained. Assessment for Learning (AfL) is integral to the daily teaching of Mathematics, with adjustments being made to the planning and teaching as the week progresses. Staff make assessments of the children's learning on a daily basis through observations, listening to the children, engaging them in conversation about what they are learning, asking open ended questions and checking understanding.

In Key Stage One we assess children's progress in mathematics using the (APP) Assessing Pupil Progress materials. Class teachers carry out their own summative assessments at the end of a unit of work in order for them to plan next steps in learning.

In Foundation Stage assessments are made against the Early Years Foundation Stage framework using Development Matters. All assessment tools are used to identify strengths and next steps for individuals and groups of children's learning to inform planning accordingly.

Assessment levels are updated each term to show individual children's attainment. The Assessment Leader holds a Pupil Progress Meeting each term with each class teacher and year group to discuss the progress of the children in their class/group. Appropriate intervention is put in place to support vulnerable learners and suitable challenge is planned for children exceeding in objectives. Teachers keep a copy of these sheets as a record of the children's achievements to inform planning and record progress. Time is set aside to moderate assessments made each term.

All parents receive an annual written report on which there is a summary of their child's effort and progress in mathematics over the year. At the end of KS1 each pupil's level of attainment against national standards is included as part of their annual written report. In Foundation Stage each child will be given an annual report detailing the level of attainment in terms of ages and months the children are working at in Development Matters.

Targets

Teachers and pupils assess progress in learning as a class and group against the learning objectives, but also with a view towards the end of year target levels. Individual pupils are given targets to work towards and strive to achieve. Teachers, children and parents work together to consider ways to enable the children to achieve their targets through the use of planning, learning and teaching strategies. Individual targets are set for every pupil each term and shared with parents.

Marking

Marking should be both diagnostic and summative. The school believes that it is best done through conversations with the child where possible and develops the child's own skills at marking and evaluating their own work (See the school Marking Policy in more specific detail for Maths recording work).

Resources

A wide range of resources in the form of models, images and more structured resources are available to use in school. Further to this each class has a large stock of resources for practical mathematics including number cards, money, 2D and 3D shapes, multilink and much more. Maths resources in classes are usually stored in a trolley accessible to the children. Resources should be made available to children at all times to support their learning in mathematics and be displayed making the classroom a number rich environment. We encourage the use of outdoor learning to enrich maths.

Homework

Homework is designed to encourage interaction between children and parents, and to develop a partnership in learning between home and school. We feel parents are key in the success of their child's learning. Currently at Cottesbrooke the Maths Co-ordinator leads Maths Homework workshops for KS1 children and parents. Children are given practical activities and challenges to develop mental calculation skills. Foundation Stage are given homework in the form of practical tasks to carry out in everyday situations at home to develop mathematical awareness and thinking skills.

Monitor and review

The implementation and progress of Mathematics teaching is monitored by the governing body and Maths Leader. The Mathematics Leader is given management time to monitor and evaluate the quality and standards of Mathematics throughout the school and support colleagues. The school has a named governor for Mathematics and they attend termly meetings with the subject leader to work together to monitor and evaluate the teaching and learning of Maths at our school. The governor nominated reports back to the governing body on a regular basis.

Amendments to this policy are made as necessary in consultation with other members of staff. It will be reviewed in line with the new statutory curriculum 2014.