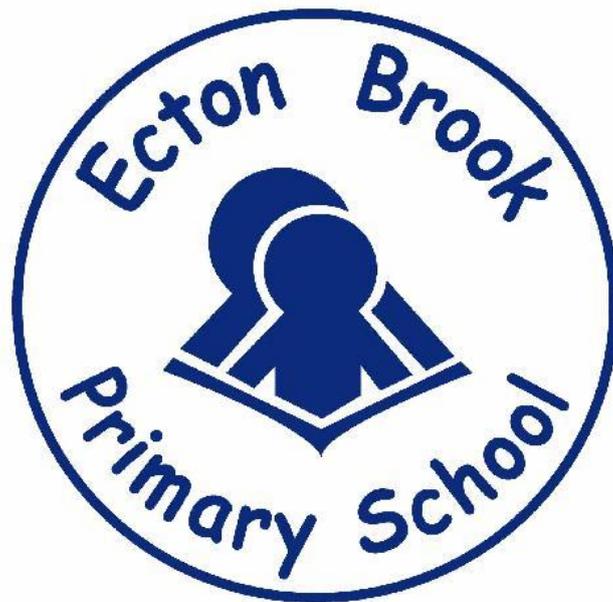


ECTON BROOK

Primary School



Mathematics

Policy

2017

Introduction

This policy is a statement of the aims, principles and strategies for the teaching and learning of mathematics at Ecton Brook Primary School. It was developed during 2015 - 2017 and is continuously being updated.

What is mathematics?

Mathematics is a body of knowledge that provides a way of viewing and making sense of the world. It is used to analyse and communicate information and ideas and to tackle a range of practical tasks and real life problems.

Aims

Using the Programmes of Study from the National Curriculum it is our aim that all children will:

- Enjoy the subject and study it with confidence and a sense of achievement.
- Achieve a high standard in maths and a range of other mathematical skills.
- Apply these skills with confidence and understanding when solving problems in real life and across the curriculum.
- Receive opportunities to work systematically, creatively and independently.
- Be able to use computing to aid mathematical development.
- Be able to use and apply a range of mental maths strategies.
- Be thoroughly prepared for the continued study of the subject throughout their school life.
- Have an ability to communicate mathematically.

Mathematics is important because:

- It is widely used in society, both in everyday situation and in the world of work.
- It can be used to represent or communicate ideas, to predict, to explain and to verify.
- It is interesting and enjoyable, providing intellectual challenge and aesthetic pleasure.

The Curriculum

Reception classes follow the Early Years Foundation Stage 2014 guidance with an emphasis on imaginative and enjoyment in activities, often of a practical nature, that may focus on mathematical development or draw out mathematical learning in other activities. In foundation stage, mathematical development is seen within two broad areas

- Number;
- Shape, space and measure.

Pupils in years 1 - 6 follow a scheme of work based on the National Curriculum Mathematics. Within the National Curriculum, mathematics is organized into attainment targets:

Year 1:

- Number Sense
- Number
- Measurement
- Geometry

Year 2-5 all of the above including:

- Statistics

Year 6 all of the above including:

- Ratio and Proportion
- Algebra

Mathematics Teaching

The teaching of mathematics in Key Stages One and Two is based on four key principles:

- A dedicated mathematics lesson every day.
- Direct teaching and interactive oral work with the whole class and groups.
- An emphasis on mental calculation.
- Controlled differentiation, with all pupils engaged in mathematics relating to a common objective.

Mathematics lessons will incorporate direct teaching and questioning of the whole class, a group or individuals. Our aim is to engage in high quality direct teaching that is oral, interactive and lively. This will be achieved through a balance of the following elements:

- Directing
- Instructing
- Demonstrating and modelling
- Explaining and illustrating
- Questioning with an emphasis on open ended questions and opportunities to extend and challenge
- Consolidating
- Evaluating pupils' responses and identifying misconceptions
- Summarising, picking out key points and making links to other work in other mathematics.

In addition, mathematics lessons will include opportunities for:

- Practical activities to provide meaningful content
- Relevant content to consolidate skills which have been learned
- The use of mental mathematics involving quick recall of mathematical facts
- Investigations and problem solving activities
- All concepts are introduced practically, then pictorially, then symbolically, then finally numerically.

Children in Reception are taught in focus groups. In Key Stage one and two mathematics is taught in class groups.

In both key stages, children should be given opportunities to:

- Develop knowledge, skills and understanding relevant to their key stage programmes of study
- Apply knowledge in a range of situations requiring a choice of the appropriate mathematics and related methods and equipment
- Recognise patterns in their work and to communicate and present results effectively
- Use mathematics to make generalisations and to justify and prove results

- Make progress through practical, investigative, and problem solving activities involving a wide range of familiar everyday situations
- Evaluate their own work and that of others
- Work independently/ co-operatively as appropriate
- Talk partners encouraging vocabulary development

The yearly teaching programme for Reception is in line with the Early Years Foundation Stage goals and provides a bridge from the goals to the National Curriculum which begins in year one. Although the Foundation Stage prepares children for the beginning of Key Stage one, it is also a distinct phase of education and one in which play is vital.

The Daily Mathematics lesson in Reception

In Reception classes, a wide range of activities supports the teaching and learning of mathematics including:

- Observation of number and pattern in the environment and daily routines
- Board games
- Large and small construction
- Stories, songs, rhymes and finger games
- Sand and water
- 2D and 3D work with a range of materials
- Imaginative play
- Cooking and shopping
- Outdoor play and 'playground' games

The reception environment has a dedicated maths area and children are always able to choose to work independently. Lessons will often include, or be based upon, well planned opportunities for children's play. The staff provide a wide range of opportunities for children to develop their independence and their ability to concentrate and persevere. We are currently reviewing practice to enable children to progress from Reception Year to Year 1 more smoothly.

Calculators

The use of calculators is planned through investigations, games and activities. It is not intended that calculators are used to replace formal or mental calculating skills, but rather to enhance the children's understanding of large numbers, number patterns and our number system in general.

Staff

Mathematics is taught by class teachers and the Teaching Assistants (TA's) are used throughout the school to support children.

During group work Teaching Assistants:

- observe and talk with the children to inform future planning
- ask the children open ended questions
- help them to work together sociably
- help them to understand an activity
- introduce/ reinforce mathematical vocabulary

Equal opportunities/ Special Needs/ EAL

On the whole children with SEN are taught within the daily mathematics lesson and are encouraged to take part when and where possible. They follow the lesson through a range of differentiated activities or approaches. However, where a pupil follows a separate programme for maths as part of their IEP this may be taught during part of the maths session.

Where applicable children's IEPs incorporate suitable objectives from the national curriculum and teachers keep any child's IEP in mind when planning work.

We incorporate maths into a wide range of cross curricular subjects and seek to take advantage of multi-cultural aspects of maths. In the daily maths lesson we support children with EAL in a variety of ways.

Within the daily mathematics lesson teachers not only provide activities to support children who find mathematics difficult but also activities that

provide appropriate challenges for children who are high achievers in Maths.

BASIC SKILLS

Ecton Brook Primary School is committed to the rigorous and systematic teaching of basic skills in English and Maths. It is the responsibility of all staff to plan basic skills in English and maths as an integral part of their teaching in the subjects and to promote basic skills throughout the curriculum. The teaching of basic skills will include all children and will be differentiated to their individual needs. The English and Maths curriculum leaders and the leadership team, on an ongoing basis, will monitor the teaching and learning of basic skills.

Homework

Homework is used to support mathematics through tasks set by each year group in a child's Learning Log. Learning Logs are set every half-term and include 5 differentiated questions for children to complete at home. Children are also encouraged to use Mathletics at home and teachers set tasks through this interactive portal. Flipped Learning is currently being used in Years 5 and 6 instead of Mathletics.

Health and Safety

Children are taught to use certain equipment such as scissors and compasses with the care for themselves and others. Aprons are used for messy work and an adult undertakes close supervision of all cooking activities.

Strategies for ensuring continuity and progression

Planning is a process in which all teachers are involved.

Long term planning

The school has adopted the National Maths Document, and this forms the basis of the scheme of work in the form of the Raise Mastery Scheme. This scheme challenges each teacher to ensure each child meets the

expectation for their particular year group and focuses on mastery by using activities to broaden and deepen knowledge. Staff meetings are used as a forum to discuss and resolve issues arising from the teaching of mathematics.

Medium term planning

Planning is organised every half term by each year group.

Short term Planning

Planning is organised by each year group. Planning is differentiated according to the needs of the children.

The role of the mathematics subject leader

The subject leader will:

- take the lead in policy development and the production of schemes of work
- ensure progression and continuity in mathematics throughout the school
- support colleagues in their improvement of lesson plans and in assessment and record keeping activities
- monitor progress in mathematics and advise the Head Teacher on action needed
- keep up to date with developments in mathematics education and disseminate information to colleagues as appropriate
- Work alongside other teachers to support and inspire other teachers.
- Analyse data and question responses and take appropriate action.
- Evaluate impact of any action taken
- Monitor standards across the school through scrutiny of planning, books and observations in order to inform priorities.
- Oversee the purchase of resources.

Assessment and Tracking

Assessment for Learning is carried out throughout lessons to ascertain the level of the children's understanding. This ensures that planning is relevant to the children. The children are aware of previous steps and next steps in learning by using success steps. The children also use AFL to show their perceived understanding at the end of some lessons, using a range of strategies such as traffic lights or thumbs up, thumbs down. The teacher then uses this knowledge to inform future planning.

Feedback to pupils on their own progress in mathematics is achievable through discussion and marking of work. Marking aims to be encouraging and supportive and is often done while a task is being carried out together with discussion between teacher and child. The use of purple pen is encouraged for children to spot and rectify errors and to explain their thoughts.

Teachers build up a picture of the children's achievements and progress through a variety of strategies such as using the initial and final assessments, observation and conversation during lessons and test materials. The children's Maths levels are updated termly in the school tracking system and progress is analysed termly by teaching teams, SLT and subject leader.

Teachers will talk to pupils about areas of strength and next steps as part of a learning conversation.

Children who are causes for concern (e.g. they have not made adequate progress throughout the year) will be referred to the SENCO and the head teacher.

The Foundation stage profile is used for all children in Reception to gather an indication of a child's progress and to set targets for future learning.

At the end of the year the children are formally assessed in KS2.

Links to computing

Each class has an interactive whiteboard. This is used in maths sessions where appropriate. Mathletics, My Maths, concept cartoons, testbase, Mangahigh and picture maths are used to aid the children's understanding

of concepts. Every year group has access to tablets which are regularly updated to include new mathematical applications and provide access to the internet.

Resources

Classroom resources for mathematics include the following: numicon, rekenrek, counting sticks, subitizing cards, rulers, Unifix, cubes, dice, dominoes, calculators (KS2), number lines and hundred squares. Central resources in mathematics are the responsibility of the maths co-ordinator who has a small budget available. These include: equipment for measurement, shape and space activities, government documents, resources for teaching money, resources for mental maths, problem solving and investigational activities, games, number mats and posters.

Governors

We have identified a Maths governor who meets with the co-ordinator half-termly to discuss SSIP action points and to monitor standards and progress in the subject.

Review and Evaluation

Opportunities for teachers to review the scheme, policy and published materials and action plan (SIP) are given on a regular basis during staff meetings.

This policy will be reviewed in the summer term 2020.