

Mathematics Policy 2019-20



Black Firs School

Introduction

Mathematics provides children with unique and powerful skills to appreciate and transform the world. Logical thinking, problem-solving and the ability to think in abstract ways are important in everyday life. It is a creative subject contributed to by many different cultures which can stimulate wonder and discovery. A quality maths education will engender a love for and curiosity about the subject. It will allow children to reason mathematically and use their understanding to make sense of the world around them. This document is a statement of the aims, principles and strategies for teaching and learning mathematics at Black Firs School.



Creative Process

The creative process in mathematics is an ongoing cycle whereby a child makes progress using small steps over time in order to fully master a concept. Understanding is developed by allowing children to experience a variety of structures and representations of a concept. They can then reflect on this experience through completing activities structured with short, coherent steps which build on prior knowledge. Activities for reflection are varied and may include questions, problems or investigations which require the interpretation of interconnected ideas to arrive at a final outcome. Children are then able to evaluate their work with the help of an adult before refining it and moving on to the next logical progression. At this point the cycle repeats.

Intent

Our aims are that all children will:

- develop basic mathematical concepts and make rich connections fluently between them;
- acquire a knowledge of computational skills which are accompanied by a quick and accurate recall of basic facts;
- develop an ability to reason clearly, logically and creatively using mathematical concepts and skills within other subject areas and everyday life;
- be able to appreciate the nature of patterns, relationships, numbers and space;
- develop and use the language of mathematics as an essential tool for communication;
- observe, explore, pose questions and devise ways of answering them using a systematic approach;
- encourage powers of judgement, imagination and the critical interpretation of findings;
- gain confidence, develop favourable attitudes and grow an interest and aesthetic awareness in the subject;
- be enabled to work independently and co-operatively.

To achieve these aims, Black Firs offers a rich, ambitious mathematics curriculum based on, but not limited to, the Early Years Foundation Stage (EYFS) Framework for children in the Early Years setting and the National Curriculum for children in Key Stage 1 and Key Stage 2.

Mathematics is highlighted as a specific area of the early learning goals within the EYFS Framework and is split into two distinct areas:

1. Numbers: children will undertake activities which develop their sense of number and solve problems designed to develop their counting, simple addition and subtraction, doubling, halving and sharing skills.
2. Shape, space and measures: children explore their understanding of everyday objects and shapes to talk and solve problems about size, weight, capacity, position, distance, time and money.

In Key Stage 1 and Key Stage 2, attainment targets are split into the strands of number, measurement, geometry, statistics, algebra and ratio and proportion (the latter two introduced at the end of Key Stage 2).

During Key Stage 1, children concentrate on mental fluency with whole numbers, counting and place value. They work with the four operations practically and visually to develop understanding and an emphasis on practice aids fluency. By the end of the key stage, almost all children will know number bonds to 20, understand place value and will begin to work with fractions. They will develop their knowledge and skills working with a range of shape and measures and use the correct mathematical vocabulary.

In Lower Key Stage 2, children become increasingly fluent with whole numbers and the four operations. They develop efficient written and mental methods and learn multiplication tables up to the 12 times table. An ever increasing range of problems allow children to reason about number, measures and shapes and make connections between each discipline.

In Upper Key Stage 2, larger numbers are introduced and a wider range of increasingly complex problems are used to develop connections between the four operations and whole numbers, fractions, decimals and percentages. Algebra and ratio and proportion are introduced and teaching in geometry, measures and statistics consolidates and extends knowledge developed in number. Children become proficient in using standard written methods for the four operations, including long multiplication and division.

Implementation

It is expected that most children will work through the programmes of study at broadly the same pace but lesson planning takes into account the security of children's understanding. Consolidation and additional practice is provided if beneficial and children who grasp concepts quickly are extended using a wider variety and complexity of task; within each team across School, thought is given on how best to organise groups of children to achieve this.

To ensure consistency and progression through each year group, Collins medium-term plans are used as a starting point for planning. Teachers aim to make mathematics lively and engaging and use a variety of resources to support lessons. Carefully planned lessons, investigations and study work assignments challenge the children to think. Some of the principles of Teaching for Mastery are used to enable children to acquire a deep, long-term, secure and adaptable understanding of the subject. Children work independently and in groups and are encouraged to discuss, use resources and ask for support as needed.

Each child in Key Stage 1 and 2 has their own maths book and teachers mark these regularly following the guidance laid out by the NCETM ([Marking and Evidence Guidance for Primary Mathematics Teaching](#)). Older children comment on their work in books and respond to feedback from adults, with increasingly complex responses from children in Key Stage 2.

The whole school environment, including the outdoors, is used to support teaching and to enthuse and involve children in mathematics. This includes role-play spaces for the younger children and lively, engaging displays in classrooms. Each teaching team has a high quality maths area that not only provides an opportunity to inspire and celebrate children's learning, but also gives children a point of reference to help with their learning.

Impact

Assessment of children's work in mathematics is ongoing. Staff use the School bookmark system to record and track the progress of each child. Staff make judgements throughout the year to decide whether a child is secure against a given learning objective. Typically, a child would not be deemed secure at first sight of achieving a learning outcome; it may take a combination of observation, discussion with a child in a lesson, work in a book, a written comment from a child or a response to a question in test conditions before arriving at such a conclusion; it is necessary for mathematical knowledge to be committed to the child's long-term memory. Children are therefore given regular opportunities for retrieval practice throughout the year.

Formal testing takes place towards the end of Year 2 and Year 6 in the SAT Key Stage 1 and Key Stage 2 tests. In addition, the Multiplication Tables Check takes place for children in Year 4.

Reporting

Reporting to parents is done on a termly basis at parent interviews and annually in an annual report sent home in July. The school now uses Earwig as its ongoing report system. Teacher assessments and SAT results are reported to parents at the end of Key Stage 1 and Key Stage 2.

Record Keeping

Children's bookmarks are regularly updated in maths books.

Bookmark data is recorded electronically using the Assessment Framework bookmark spreadsheet. Teacher records.

Children's Earwig records.

Please refer to the School policy document on record keeping.

Children with SEND

Please refer to the School policy document on special needs.

Equal Opportunities

Please refer to the School Aims & Statement on Equal Opportunities.

Role Of Coordinator

The curriculum coordinator has a crucial role in planning and monitoring the curriculum. Please refer to our document detailing the work and responsibilities of all curriculum coordinators.

Health & Safety

See Health and Safety policy.

Review

The school policy for mathematics reflects the consensus of opinion of the whole teaching staff and has the full agreement of the Governing Body. The subject coordinator, Headteacher and staff will review this policy in accordance with the development priorities stated in the School's Development Plan. Any suggested amendments will be presented to the Governing Body for discussion.