

Dinnington First School Mathematics Policy



The Importance of Mathematics

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary in most forms of employment. A high-quality mathematics education, therefore, provides a foundation for understanding the world, the ability to reason mathematically and a sense of enjoyment and curiosity about the subject.

Mathematics is a proficiency which involves confidence and competence with numbers and measures and the ability to recall and apply knowledge. It requires an understanding of the number system, a repertoire of computational skills and an ability to solve number problems in a variety of ways in which information is gathered by counting and measuring and is presented in graphs, diagrams, charts and tables.

Mathematics gives children a way of coming to terms with their environment. Practical tasks and real life problems can be approached from a mathematical point of view. Mathematics provides children with imaginative areas of exploration and study and gives them the materials upon which to exercise their mathematical skills. These skills are a necessary tool of everyday life. Mathematics should help children to develop an appreciation of, and enjoyment in, the subject itself; as well as a realisation of its role in other curriculum areas.

Purpose:

The purpose of this policy is to describe our practice in Mathematics and the principles upon which this is based.

Intent

We aim to develop lively, enquiring minds encouraging pupils to become self-motivated, confident and capable in order to solve problems that will become an integral part of their future.

The National Curriculum for mathematics aims to ensure that all pupils:

- become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils have conceptual understanding and are able to recall and apply their knowledge rapidly and accurately to problems
- reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

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Children deserve

- To be set appropriate learning challenges
- To be taught well and be given the opportunity to learn in ways that maximise the chances of success.
- To have adults working with them to tackle the specific barriers to progress they face.

Outcomes

In Mathematics education at Dinnington First School we aim to sustain and develop in all children:

- confidence, understanding and enjoyment in mathematics
an awareness of relationship and pattern, and how these can bring about a clearer understanding of a situation
- an appreciation of mathematics as a means of communication through which they can analyse information and ideas
the ability to work systematically where the task requires a careful accurate approach
- the ability to show imagination, initiative and flexibility when appropriate
independence of thought and action as well as the ability to co-operate within a group
- problem solving skills and strategies
the ability to use mathematics effectively as a tool in a wide variety of situations
- the sensible use of factual recall, mental and written methods, calculators, micro-technology and other mathematical aids.



Implementation

Foundation Stage

The programme of study for the Foundation stage is set out in the EYFS Framework 2012. Mathematics involves providing children with opportunities to develop and improve their skills in counting, understanding and using numbers, calculating simple addition and subtraction problems; and to describe shape, spaces and measures. We also offer children the opportunity to develop problem solving and reasoning through a range of practical learning experiences.

Key Stage 1 and 2

The Programmes of study for mathematics are set out year by year for Key Stages 1 and 2 in the new National Curriculum (2014). The programmes of study are organised in a distinct sequence and structured into separate domains. To help ensure quality delivery, appropriate pace, progression and coverage the school has adopted the White Rose scheme of work <https://whiterosemaths.com> and works closely with other schools in the Gosforth Trust to further improve planning and delivery.

Coverage and understanding is reviewed continually by class teachers and planning is adjusted accordingly to ensure that once pupils have a basic grasp of a mathematical concept they are given opportunities to broaden their skills through, investigations allowing them to make connections across mathematical ideas, further develop fluency and use mathematical reasoning.

Key Stage 1

The principal focus of mathematics teaching in Key Stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources (e.g. concrete objects and measuring tools).

At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.

By the end of Year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value up to and beyond 100. Pupils should recognise simple fractions. They should be recalling number facts related to the 2, 5 and 10x tables and be using these to help solve multiplication and division problems. An emphasis on practice at this early stage will aid fluency.

Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at Key Stage 1. Teaching should ensure that pupils are beginning to develop logical thinking and simple mathematical reasoning techniques related to the number knowledge they have.

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Key Stage 2

The principal focus of mathematics teaching in lower Key Stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.

At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number.

By the end of Year 4, pupils should have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work.

Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

Cross curricular

Throughout the whole curriculum, opportunities to extend and promote Mathematics should be sought. For example, within every Science topics, children will also develop their mathematical skills through measuring, estimation and timing. This will help children appreciate how to Work Scientifically but also practise discrete mathematical skills.

Teaching and Learning

The approach to the teaching of mathematics within the school is based on

- A mathematics lesson every day
- A clear focus on direct, instructional teaching and interactive oral work with both the whole class and smaller ability groups.
- Regular repetition of key facts
- Use of a variety of teaching methods that employ concrete, pictorial and abstract problems.

The curriculum is delivered by class teachers. All work is differentiated where necessary in order to give appropriate levels of work, though for the majority of the time we aim for all of the class to be able to access the same content. Planning is based upon the new National Curriculum (2014) and is structured in line with the White Rose scheme of work. Class teachers are responsible for the relevant provision of their own classes and individually develop weekly plans which give details of learning objectives and appropriate differentiated activities. Although planned in advance, they are adjusted on a daily basis to better suit the arising needs of a class and individual pupils.

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Calculation Policy

The calculation policy has been updated in light of the new national curriculum programmes of study and discussion with class teachers. It based upon the White Rose scheme of work.

Inclusion and equal opportunities

All children are provided with equal access to the mathematics curriculum. We aim to provide suitable learning opportunities regardless of gender, ethnicity or home background.

Entitlement

At Dinnington First School, we teach mathematics to all children, whatever their ability or individual need. Through our mathematics teaching, we provide learning opportunities that enable all pupils to make good progress. Every child has an equal right to receive the maths curriculum in daily maths lessons of approximately one hour. There may be times when it is more appropriate for Foundation Stage or Key Stage 1 sessions to be approximately 45 minutes in length and for Key Stage 2 sessions to be over an hour.

Special Educational Needs

All children will have their specific needs met through differentiated work in conjunction with targets. TA support time is planned for and provided in relation to identified needs for individuals and groups.

Resources

All classrooms have access to a number of mathematical, age appropriate resources. Resources which are not used or required regularly are stored centrally and accessed by teachers at the beginning of a topic.

Displays

Each classroom / resource area should have a maths display relating to current work or key non-negotiable objectives. The maths display should be updated regularly to reflect the pace of learning. Displays can include: key vocabulary, children's work, teacher modelling, visual prompts, facts to help recall and questions to develop reasoning skills.

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Impact

Assessment

- Children in the Foundation Stage are assessed in accordance with the EYFS curriculum.
- A school pupil tracker is used in Years 1-4. Data is collected every term. Teachers use both formative and summative assessments linked to objectives from the National Curriculum to decide if a child is on track to achieve national expectations, be below national expectations or be exceeding national expectations.
- Using the tracker, children who are significantly behind in terms of attainment and / or progress will be highlighted for staff plan interventions to help diminish the gaps.
- SAT's and X-Table tests– The SAT's take place in Year 2 during around Easter time. A newly introduced X-table recall test will be sat by all children in Year 4 during the Summer Term.
- Summative assessment – at the end of every term, children will undertake SAT-style tests (Headstart / White Rose). Each half term children will be assessed on their non-negotiable objectives. Data will help inform planning and be used to inform tracking data and support groups.

Marking and presentation

Teachers are expected to adhere to the schools marking policy when marking books and presentation policy when guiding children as to how to present their work.

Monitoring and Evaluation

The Curriculum leader alongside the SLT, are responsible for monitoring and evaluating curriculum progress and delivery. This is done through book scrutiny, planning scrutiny, lesson observations, learning-walks, pupil interviews, staff discussions and audits of resources.

Review

The mathematics policy will be reflected in our practise. The policy will be reviewed September 2021.

Maths Coordinator : Mr R Donnelly