

NETHERTON JUNIOR & INFANT SCHOOL

MATHEMATICS POLICY

JUNE 2016

Mathematics Policy

Aims

Mathematics teaches children how to make sense of the world around them through developing their ability to calculate, reason and solve problems. It enables children to understand relationships and patterns in both number and space in their everyday lives. Through their growing knowledge and understanding, children learn to appreciate the contribution made by many cultures to the development and application of mathematics.

The aims of teaching mathematics are:

- to promote enjoyment of learning through practical activity, exploration and discussion;
- to promote confidence and competence with numbers and the number system;
- to develop the ability to solve problems 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 understand the importance of mathematics in everyday life.

Teaching and learning style

The school uses a variety of teaching and learning styles in mathematics. Our principal aim is to develop children's knowledge, skills and understanding. During our daily lessons we encourage children to ask as well as answer mathematical questions. They have the opportunity to use a wide range of resources, such as number lines, number squares, digit cards and small apparatus to support their work. ICT is used in mathematics lessons for modelling ideas and methods, it is used interactively to support children's learning. Wherever possible, we encourage the children to apply their learning to everyday situations.

In all classes children have a wide range of mathematical abilities. We recognise this fact and provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. 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. We use classroom assistants and special needs assistants to support some children, and to ensure that work is matched to the needs of individuals.

Mathematics curriculum planning

Mathematics is a core subject in the National Curriculum, and we use the programmes of study as the basis for planning mathematics lessons that meet the curriculum aims of pupils becoming fluent in maths, reasoning mathematically and solving problems in maths.

We carry out the curriculum planning in mathematics in three phases (long-term, medium-term and short-term). Following the national curriculum, our long term plan identifies the mathematics to be taught in each half term for each year group.

Our medium-term mathematics plans give details of the main teaching objectives for each term. They ensure an appropriate balance and distribution of work across each term. These plans are reviewed by the subject leader.

It is the class teacher who completes the weekly plans for the teaching of mathematics. These weekly plans list the specific learning objectives and expected outcomes for each lesson, and give details of how the lessons are to be taught. The class teacher keeps these individual plans, and the subject leader is available to discuss them on an informal basis.

Early Years

We teach mathematics in our Early Years unit. We follow the Early Years Foundation Stage Curriculum, where we relate the mathematical aspects of the children's work to the objectives set out in the Early Learning Goals, which underpin the curriculum planning for children aged three to five. We give all the children ample opportunity 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. We use Numicon as a basis for our number development from EY 1 onwards.

Contribution of mathematics to teaching in other curriculum areas

English

The teaching of Mathematics contributes significantly to children's understanding of English in our school by actively promoting the skills of reading, writing, speaking and listening. For example, in mathematics lessons we expect children to read and interpret problems, in order to identify the mathematics involved. They are also improving their command of English when they explain and present their work to others during plenary sessions. In English lessons also, maths can contribute: younger children enjoy stories and rhyme that rely on counting and sequencing, while older children encounter mathematical vocabulary, graphs and charts when reading non-fiction texts.

Personal, social and health education (PSHE) and citizenship

Mathematics contributes to the teaching of PSHE and citizenship. The work that children do outside their normal lessons encourages independent study and helps them to become increasingly responsible for their own learning. The planned activities that children do within the classroom encourage them to work together and respect each other's views. We present older children with real-life situations in their mathematics work, including use of money.

Spiritual, moral, social and cultural development

The teaching of mathematics supports the social development of our children through the way we expect them to work with each other in lessons. We group children so that they work together, and we give them the chance to discuss their ideas and results.

Mathematics and ICT

Information and communication technology enhances the teaching of mathematics significantly, because ICT is particularly useful for mathematical tasks. It also offers ways of impacting on learning which are not possible with conventional methods. Teachers can use software to present information visually, dynamically and interactively, so that children understand concepts more quickly. Younger children use ICT to communicate results with appropriate mathematical symbols. Older children use it to produce graphs and tables when explaining their results, or when creating repeating patterns, such as tessellations. When working on control, children can use both standard and non-standard measures for distance and angle. They can also use simulations to identify patterns and relationships. Teachers use interactive whiteboards with mathematical software to develop and enhance their teaching of mathematics.

Mathematics and inclusion

At our school we teach mathematics to all children, whatever their ability and individual needs, irrespective of ethnicity, attainment, age, disability, gender or background. Mathematics forms part of the school curriculum policy to provide a broad and balanced education to all children. Through our mathematics teaching we provide learning opportunities that enable all pupils to make good progress. We strive hard to meet the needs of those pupils with special educational needs, those with disabilities, those with special gifts and talents and those learning English as an additional language, and we take all reasonable steps to achieve this. For further details see separate policies: Special Educational Needs.

When progress falls significantly outside the expected range, the child may have special educational needs. Our assessment process looks at a range of factors – classroom organisation, teaching materials, teaching style, differentiation – so that we can take some additional or different action to enable the child to learn more effectively. Assessment against the National Curriculum allows us to consider each child's attainment and progress against expected levels. This ensures that our teaching is matched to the child's needs.

Intervention through SEN support will lead to the creation of a One Page Profile (OPP) for children with special educational needs. The OPP may include, as appropriate, specific targets relating to mathematics.

We enable all pupils to have access to the full range of activities involved in learning mathematics. Where children are to participate in activities outside the classroom (a 'maths trail', for example) we carry out a risk assessment prior to the activity, to ensure that the activity is safe and appropriate for all pupils.

To overcome any potential barriers to learning in mathematics, some pupils may require:

- specific help with number recall or the interpretation of data represented in graphs, tables or bar charts, to compensate for difficulties with long- or short-term memory or with visual discrimination
- access to tactile and other specialist equipment for work relating to shape, space and measures, to overcome difficulties in managing visual information

- help in interpreting or responding to oral directions when making mental calculations, to compensate for difficulties in hearing or with auditory discrimination
- access to equipment or other resources, such as ICT to overcome difficulties in thinking and working in the abstract.

Assessment for learning

Teachers will assess children's work in mathematics from three aspects (long-term, medium-term and short-term). We use short-term assessments to help us adjust our daily plans. These short-term assessments are closely matched to the teaching objectives.

We make medium-term assessments to measure progress against the key objectives, and to help us plan the next unit of work. These assessments are recorded on Target Tracker and discussed during pupil progress meetings.

We make long-term assessments towards the end of the school year, and we use these to assess progress against school and national targets. We can then set targets for the next school year and make a summary of each child's progress before discussing it with parents. We pass this information on to the next teacher at the end of the year, so that s/he can plan for the new school year. We make the long-term assessments with the help of end-of-year tests and teacher assessments. We use the national tests for children in Year 2 and Year 6, plus the optional tests for children at the end of Years 3, 4 and 5.

Resources

A wide range of resources are available in each classroom. These are clearly labelled to provide easy access for pupils, to encourage independent working. These include rulers, digit cards, arrow cards, small counting apparatus, hundred squares and multiplication squares.

Shared resources are stored centrally in the shared areas. These include calculators, scales, measuring equipment, money, construction equipment and maths games. In addition to the mathematics scheme books in each classroom, there are a range of resource books available in individual classrooms.

Software is available for use on laptops and interactive whiteboards, this includes the Interactive Teaching Programs and the Easiteach program.

Monitoring and review

Monitoring of the standards of children's work and of the quality of teaching and planning in mathematics is the responsibility of the subject leader, head teacher and senior leadership team. The work of the subject leader also involves supporting colleagues in their teaching, being informed about current developments in the subject, and providing a strategic lead and direction for mathematics in the school.

This policy will be reviewed at least every two years.

The Governor with responsibility for Mathematics is Mrs N. Leonard.
Mathematics subject leader: Mrs S Goodrum.

