Botanic
PRIMARY SCHOOL

Mathematics and Numeracy Policy

2022

Mathematics and Numeracy is one of the six Areas of Learning within the Northern Ireland Curriculum. It focuses on the development of mathematical concepts and numeracy across the curriculum. Numeracy is a life skill that will help children to make informed and responsible choices and decisions throughout their lives.

This is the Mathematics and Numeracy policy agreed by the Principal, staff and Board of Governors of Botanic Primary School. We value every pupil and the contribution they have to make to learning. Accordingly, we aim to ensure that every child achieves their full potential in this subject and that all are enabled to develop their skills in accordance with their level of ability and understanding of mathematics.

Why we teach mathematics?

Mathematics:

- provides a way of viewing and making sense of the world
- is used to analyse and communicate information and ideas
- addresses practical tasks and real life problems
- explores new ideas
- is predictive, not merely descriptive or explanatory
- is enjoyable and valuable as a subject in its own right
- helps children work cooperatively and independently
- is an integral part of learning and is necessary for full participation in all aspects of the curriculum and is reinforced through other subjects

Aims

To enable our children to:

- develop knowledge and skills and understanding needed to apply a range of mathematical concepts
- learn to address problems in real life situations
- develop personal qualities, positive attitudes and self confidence
- sort independently
- become numerate and to think mathematically
- think logically
- learn to work cooperatively
- develop an understanding of maths through a process of enquiry and experiment
- appreciate patterns and relations in mathematics
- develop confidence in using mathematical language
- make acceptable progress according to their level and understanding of mathematics

Teaching Mathematics

Botanic Primary's approach to teaching mathematics is based on six key principles:

- a dedicated mathematics lesson every day;
- direct teaching and interactive oral work with the whole class and in groups
- an emphasis on mental calculation;
- teaching and learning should take account of the key role of mathematical vocabulary;
- planned differentiation;
- using practical resources to teach Maths is essential beginning in Foundation and continuing through to Level 5.

Teaching Time

To ensure that there is adequate time for developing numeracy skills, each class teacher will provide a daily lesson for mathematics, which will last 45 minutes in the Foundation Stage and Key Stage 1 and 50 to 60 minutes in Key Stage 2.

Pupils will also be given opportunities to transfer their mathematical understanding to other contexts across the curriculum.

Lesson Structure

A typical lesson will be structured as follows:

- The **learning intentions** are clearly displayed and referred to at the beginning of the lesson, during the lesson or after the mental starter and then referred to at the end of the plenary (marking refers to L.I.).
- **oral and mental starter** (10 mins)
  whole-class work to rehearse, sharpen and develop mental and oral skills
- **main teaching activity** (about 30-40 mins) whole class work and class interaction is followed by pupil practice and consolidation activities. Pupils focus on their newly acquired knowledge and are differentiated into ability levels
- **plenary**, offers the whole class a chance to feed back, discuss misconceptions and recapitulate what they have learnt. Also as a tool for the pupils and teacher to assess the learning and plan the next steps.
- **Vocabulary** relevant to the lesson is referred to and clearly displayed

'Using Mathematics' across the curriculum

The Northern Ireland Curriculum identifies 'Using Mathematics' as one of the three Cross-Curricular Skills that children require for lifelong learning and for operating effectively in society. It is 'the skill of applying mathematical concepts, processes and understanding appropriately in a variety of contexts'. Although our pupils mainly acquire and consolidate their mathematical knowledge concepts and skills during their mathematics lessons, they will also be given opportunities to transfer their understanding in their World Around Us class topics

New approaches

Recent research has proven that our brains show 'plasticity', that our brains can grow. This is especially the case when we are problem solving in maths and get things wrong. Therefore, in Maths it is important that the pupils are given opportunities to problem solve and look for patterns, and when they make mistakes or struggle that they are given time and support if necessary to correct their mistakes.

Maths Anxiety affects the majority of the adult population and so it is important that adults talk positively to pupils about Maths. Growth Mindset plays a large part in this and pupils should be encouraged to realise that criticism is good and that getting things wrong helps us to learn.

Mental Maths

Mental maths is an integral part of the maths curriculum and will:

- be part of the daily maths lesson
- promote the use of number strategies to explore maths problems
- include opportunities for interactive learning of mathematics
- form part of the *Friday test*

Using ICT

ICT plays an integral part in enhancing the teaching of Mathematics and Numeracy and to motivate children's learning. The pupils develop their ICT skills in maths lessons by making use of a range of activities and resources such as coding apps and robotic devices (Beebot, Sphero, dash). Also games on the Activ Panels and iPads for problem solving and practising the four mathematical processes and concepts. The school has purchased full membership of 'Sumdog' an online practice and assessment tool that uses games-based learning to build maths fluency.

Thinking Skills and Personal Capabilities

Opportunities for the pupils to develop thinking skills and personal capabilities in mathematics lessons are planned for by individual year groups and form part of Maths Investigations, evident in the 6-weekly planners. Children are given worthwhile and real-life experiences which help them develop skills in:

- Thinking, Problem-Solving and Decision-Making;
- Self management;
- Working with Others
- Managing Information;
- Being Creative.

Differentiation

Differentiation is necessary for children to progress at their own pace therefore activities are planned to match ability levels.

For Years 4-7 using Collins New Primary Maths activities are differentiated into three ability levels. Teachers may also use other appropriately levelled resources so that all pupils may have success at their ability level.

Years 1-3 use mainly Heinemann Maths and the 3 levels of resources are used with other resources and activities to cater for all abilities and needs.
Further differentiated materials for Able and Talented are available and planned for in the 6-weekly planners. Botanic Primary Maths schemes have been created recognising that in each class there is a range of levels. Maths lessons provide for the use of practical resources and are noted in the 6 weekly planners.

Special Educational Needs
Pupils may receive extra Maths Support from the designated Maths Support teachers usually as a withdrawn group in the Maths Support room. These pupils will be chosen using teacher judgement and PTM results. Maths Support pupils will benefit from small group support, covering mathematical concepts requested by the class teacher and using Rapid Maths as well as a wide range of resources.
Maths Support pupils will no longer receive support when it is agreed between the Maths Support teachers and the class teacher that the pupil has made enough progress to be able to work with the main groups in the class, without intensive support.
Pupils may have Maths targets written in their Individual Education Plan in consultation with the SENCo.

Equal Opportunities

Every child, regardless of gender or ethic background will be given the opportunity to develop their full mathematical potential. Equal opportunities are provided and this is monitored by analysing pupil performance throughout the school to ensure that there is no disparity.

Progression and Continuity

Pupils' learning in Mathematics and Numeracy will develop through a line of progression as expressed in the school's scheme of work. Learning intentions will be planned and met through the delivery of differentiated lessons. The statutory requirements for Mathematics and Numeracy outlined in the Northern Ireland Curriculum and CCEA's Lines of Development form the basis of the scheme of work. All classes will experience a wide range of teaching strategies and learning experiences. All planning will be through the 6-weekly notes. These are evaluated by teachers at the end of each half term and written evaluations submitted to the Maths Coordinator. The Maths Coordinator in turn writes a monitoring report which is submitted to the SLT on a half-termly basis.

Assessment

Assessment is an integral part of our teaching and learning and is a continuous process. We strive to make our assessment purposeful, using it to inform our planning, to help in identifying any strengths and weaknesses children may be experiencing in their mathematical understanding and in assisting to evaluate the quality of teaching and learning

Assessment takes place in each lesson when a set of questions are specifically designed to assist in assessing pupils' understanding of the lesson objectives. Other forms of formative assessment such as weekly and end of strand tests are also used. Summative assessments include standardised tests such as the PTM tests for Years 3-7.
Formal assessment for mathematics is statutory at the end of Key Stage 1 and 2 however, over the last few years due to Union strike action and Covid, levelled maths samples have not been requested by CCEA.

Homework

Maths homework is used to reinforce class learning. It will include practical activities, written activities and in some cases rote learning activities. The quantity and frequency of maths homework is outlined in the school's homework policy. From Year 3 to 7 pupils will have daily number fact homeworks.

Record Keeping

Maths tasks (1 per term) are filed in the pupils' individual assessment folder which contains their tasks for Maths, Literacy and ICT from Year 1 to Year 7. These are passed on to the next year group teacher at the end of each year.

Reporting to Parents

Botanic Primary views its relationship with parents as being a valuable partnership, working together for the good of the child. We welcome parents to discuss any concerns they may have about their child's progress. Teachers are available after school for consultation and in turn seek opportunities to discuss concerns about problems a child may be having in mathematics.

Parent interviews are held at least once during the school year. A written report is also provided in June and includes the teacher's assessment of progress made in Mathematics and Numeracy as well as a grade for attainment and effort in Years 3-7. The reports for Year 4 and 7 also include the statutory reporting at the end of Key Stage one and two in Mathematics.

Monitoring and Evaluation

Monitoring and evaluation will be carried out by the SLT and Mathematics and Numeracy Coordinator. This will include collecting pupils' work and monitoring the 6-weekly notes as well as class observations. The coordinator also carries out an annual analysis of end-of-year assessments and standardised tests carried out.

Mathematical Resources

Botanic Primary has invested in a wide variety of mathematical equipment and software. Most of the resources are stored in the maths store on the main corridor. Individual classes also have some resources stored in the classroom.

Review and Monitoring of the Policy

This policy will be reviewed and updated by February 2025