John Perry Primary School

Mathematics Policy

Date: October 2017

Policy to be reviewed: October 2018

Introduction

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 for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject. (National Curriculum 2014)

The aims of the 2014 National Curriculum are for our pupils to:

- Become fluent in the fundamentals of mathematics through varied and frequent practice with complexity increasing over time so that pupils develop conceptual understanding and ability to recall and apply knowledge rapidly and accurately.
- Reason mathematically; follow a line of enquiry, conjecture relationships and generalisations.
- Be able to justify and prove their reasoning by using mathematical language.
- Problem solve by applying knowledge to a variety of problems through breaking down problems into simpler steps and persevering in answering.

The National Curriculum sets out year-by-year programmes of study for key stages 1 and 2. This ensures continuity and progression in the teaching of mathematics.

The EYFS Framework in relation to mathematics aims for our pupils to:

Mathematics (in EYFS) 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 shapes, space and measures. (EYFS DfE 2012)

This area of learning is divided into two aspects which are Numbers and Shape, Space and Measure which focus on the following:

- Develop and improve their skills in counting
- Understand and use numbers
- Calculate simple addition and subtraction problems
- Describe shapes, spaces, and measures

The purpose of mathematics in our school is to develop:

- Positive attitudes towards learning mathematics
- Awareness of the relevance of mathematics in the real world
- Confidence in using and applying mathematical knowledge, concepts and skills
- Problem solving skills
- Reasoning skills
- Logical thinking
- The ability to work systematically and accurately
- Independent and group work skills
- The confidence to ask and answer questions
- The ability to openly share work and learn from mistakes
- An ability to use and apply mathematics across the curriculum and in real life

We aim to provide a stimulating and exciting learning environment that takes account of different learning styles and uses appropriate resources to maximise teaching & learning.

Breadth of study

Careful planning and preparation ensures that throughout the school children engage in:

- Practical activities and games using a variety of resources
- Problem solving activities to challenge thinking
- Individual, paired, group and whole class learning and discussions
- Purposeful practise where time is given to apply their learning
- A range of methods of calculating e.g. mental, pencil & paper and using a calculator

We also seek to explore and utilise further opportunities to use and apply mathematics across all subject areas.

Teachers planning and organisation

Long term planning

The National Curriculum for Mathematics 2014, Development Matters and the Early Learning Goals (Number, Shape Space & Measure) alongside the Abacus programme of study provide the long term planning for mathematics taught in the school.

Medium term planning

As well as the National Curriculum and Abacus programme of study, teachers are encouraged to use the White Rose resources to further develop the teaching and learning of mathematics.

These resources provide teachers with exemplification for maths objectives and are broken down into fluency, reasoning and problem solving incorporating the key aims of the National Curriculum.

Short term planning

The above planning supports daily lesson planning. Lesson are planned weekly, within year group teams through the discussion of children's needs and progression, ensuring that resources and teaching meet the needs of the children within each class.
In Key Stage 1 and 2, all classes have a daily mathematics lesson which lasts for one hour. In EYFS teachers ensure that the children learn through a mixture of adult led activities and child initiated activities both inside and outside of the classroom throughout the day. Mathematics is taught through an integrated approach.

Cross curricular

Class teachers regularly plan for opportunities for children to apply their mathematical skills across the curriculum. This allows the children to revisit, practise and consolidate different areas of Mathematics and apply them within different contexts.

Special educational needs & disabilities (SEND)

Daily mathematics lessons are inclusive to pupils with special educational needs and disabilities. Where required, children's IEP's incorporate suitable objectives from the National Curriculum for Mathematics or Development Matters and teachers keep these in mind when planning work. These targets may be worked upon within the lesson as well as on a 1:1 basis outside the mathematics lesson. Maths focused intervention in school helps children with gaps in their learning and mathematical understanding. These are delivered by trained support staff and overseen by the SENCO and/or the class teacher. Within the daily mathematics lesson teachers have a responsibility to not only provide differentiated activities to support children with SEND but also activities that provide sufficient challenge for children who are high achievers and/or academically more able. It is the teachers' responsibility to ensure that all children are challenged at a level appropriate to their ability.

Equal Opportunities

Positive attitudes towards mathematics are encouraged, so that all children, regardless of race, gender, ability or special needs, including those for whom English is a second language, develop an enjoyment and confidence with mathematics.

The aim is to ensure that everyone makes progress, gains positively from lessons and to plan inclusive lessons.

Lessons

In all lessons, learning intentions and success criteria are shared with the pupils and discussed. The emphasis in lessons is to make teaching interactive and lively, to engage all children encouraging them to talk about mathematics.

Lessons involve elements of:

- Instruction – giving information and structuring it well;

- Demonstration – showing, describing and modelling mathematics using appropriate resources and visual displays;
- Explanation and illustrating – giving accurate and well-paced explanations;
- Questioning and discussion;
- Consolidation;
- Reflection and evaluation– identifying mistakes and using them as positive teaching points;
- Summarisation – reviewing mathematics that has been taught enabling children to focus on next steps.

Assessment, Recording and Reporting

Assessment is an integral part of teaching and learning and is a continuous process. Teachers make assessments of children daily through;

- Regular marking of work
- Analysing errors and picking up on misconceptions
- Asking questions and listening to answers
- Facilitating and listening to discussions
- Making observations

These ongoing assessments inform future planning and teaching. Lessons are adapted readily and short term planning evaluated in light of these assessments.

As well as this termly assessments are carried out across the school using the assessment materials for each year group provided by the Abacus schemes of learning. These materials used alongside judgements made from class work, support teachers in making an assessment for each child which they enter onto Target Tracker.

Pupil Progress meetings are timetabled each term for all classes. Progress of pupils is discussed and appropriate intervention considered and put in place where appropriate Assessment for learning occurs throughout the entire Maths lesson, enabling teachers/learning support assistants to adapt their teaching/input to meet the children's needs.
On a daily basis children self-assess against the Learning Intention and Success Criteria, giving them a sense of success and empowering them to take ownership and responsibility of their own learning.

Pupils across the school, including in Early Years, are baselined in September to provide an accurate starting point for each pupil. Pupils are then continually assessed throughout the year and progress towards the Early Learning Goals in EYFS and the National Curriculum expectations is monitored.

Marking of children's work is essential to ensure they make further progress. Work is marked against the learning intention and success criteria, in line with the school's marking policy, and includes next steps. Children are encouraged to self-assess their work and given time to read teachers' comments and make corrections or improvements. Responses to marking are made as close to the work as possible, ideally at the start of the next lesson.

Some pieces of work in mathematics can be peer assessed with support and guidance from the teacher – particularly in KS2.

Maths books are moderated internally at regular school Insets. We also participate in cross-schools moderation insets to ensure there is evidence of progress and challenge in Maths and to quality assure teachers judgements.

Children are taught a variety of methods for recording their work and are encouraged and supported to use the most appropriate and convenient. Children are encouraged to use mental strategies and their own jottings before resorting to more formal written methods. Children's own jottings to support their work is encouraged throughout all year groups.

At the end of each academic year, a written report is given to parents outlining individual successes and targets in Maths. Those parents/carers with children in Year 2 and Year 6 are informed of SATS results. Parents/carers with children in Early Years receive a report with progress towards Early Learning Goals, informing also about achievement of a Good Level of Development (GLD). End of Key Stage Assessments are analysed by the Subject Leads and SLT and feed into the School Improvement and Development Plan and performance management.

Resources

Each class has a stock of core resources that are age appropriate. Additional mathematical equipment and resources are stored centrally in the mathematics resource cupboard.

Role of the Maths Subject Leader

- To lead in the development of Maths throughout the school.
- To monitor the planning, teaching and learning of Maths throughout the school.
- To help raise standards in Maths.
- To provide teachers with support in the teaching of Maths.
- To provide staff with CPD opportunities in relation to Maths within the confines of the budget and the School Improvement Plan
- To monitor and maintain high quality resources.
- To keep up to date with new developments in the area of Maths.

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