



St Patricks Catholic Primary School Mathematics Policy June 2020. Review Date: June 2022



Mathematics Policy



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Purpose of Policy

Mathematics 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. We want to impart to our children that Mathematics is not confined to just acquiring mathematical skills, but most importantly it is about fostering inquiring minds, inciting enthusiasm and valuing curiosity.

The policy reflects the views of all the staff of the school. It has been drawn up following consultation with all staff and children, and has full agreement of the Governing Body. Staff have access to the Policy on the school's server via the MLE. Parents are also able to access a copy via the school website.

Aims:

- 1. Become fluent in the fundamentals of mathematics;**
- 2. Reason mathematically;**
- 3. Can solve problems by applying their mathematics.**

Our curriculum

The content and principles underpinning the 2014 mathematics curriculum and the maths curriculum at St. Patricks Primary School are based on those found in high-performing education systems internationally, particularly those of east and south-east Asian countries such as Singapore, Japan, South Korea and China. The OECD suggests that by age 15 students from these countries are on average up to three years ahead in maths compared to 15 years in England. We learn from their education systems by adopting a 'mastery approach' to teaching commonly followed in these countries. These principles and features characterise our approach:

1. Teachers reinforce an expectation that all pupils are capable of achieving high standards in mathematics;
2. The large majority of pupils progress through the curriculum content at the same pace. Differentiation is achieved by emphasising deep knowledge and through individual support and intervention.



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3. Teaching is underpinned by methodical curriculum design and supported by carefully crafted lessons and resources to foster deep conceptual and procedural knowledge;
4. Practice and consolidation play a central role. Carefully designed variation within this builds fluency and understanding of underlying mathematical concepts;
5. Teachers use precise questioning in class to test conceptual and procedural knowledge, and assess pupils regularly to identify those requiring intervention so that all pupils keep up.

The intention of these approaches is to provide all children with full access to the curriculum, enabling them to achieve confidence and competence – ‘mastery’ – in mathematics.

Mathematics and the Primary Curriculum

The Foundation Stage

In the Early Years Foundation Stage (EYFS), we relate the mathematical aspects of the children's work to the Development Matters statements and the Early Learning Goals (ELG), as set out in the EYFS profile document. Mathematics development involves providing children with opportunities to practise and improve their skills in counting numbers, calculating simple addition and subtraction problems, and to describe shapes, spaces, and measures. The profile for Mathematics areas of learning are Number (ELG 11) and shape, space and measures (ELG 12). We continually observe and assess children against these areas using their age-related objectives, and plan the next steps in their mathematical development through a topic-based curriculum.

1. There are opportunities for children to “bump” into Maths throughout the EYFS (both inside and outside) – through both planned activities and the self-selection of easily accessible quality maths resources
2. Children are just as likely to access the Mathematics curriculum through cooking activities in the kitchen, building activities in the construction area or in the outdoor area
3. Whenever possible children’s interests are used as a vehicle for delivering the curriculum. For instance, an interest in dinosaurs may give rise to sorting, counting and recording the number of dinosaurs in small world play



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4. Staff support children's learning through planned activities but also value and support self-initiated mathematical learning.
5. Towards the end of Reception teachers aim to draw the elements of a daily mathematics lesson together so that by the time children move into Year 1 they are familiar with a structured lesson / activity.

Years 1 - 6

1. Through Years 1 to 6 we use a coherent programme of high-quality materials and exercises, which are structured with great care to build deep conceptual knowledge alongside developing procedural fluency.
2. Our KS1 and KS2 teachers use textbooks and workbooks from the 'Maths - No Problem!' series, which is based on the principles of how Mathematics is taught in Singapore and aligned with the National Curriculum 2014, to support their planning and delivery of Mathematics teaching. Year 6 follows 'Hamilton Trust' for core lesson with 'Maths – No Problem' used to consolidate understanding.
3. The 'Maths - No Problem!' textbooks and workbooks are arranged in chapters and, over the course of the academic year, all units of the National Curriculum 2014 are covered.
4. The short term planning is done weekly, with teachers planning learning intentions, 'Steps to Success', identifying possible misconceptions, key vocabulary and ways to challenge pupils.
5. If the needs of the children are best met following an alternative plan, which deviates from the National Curriculum 2014, then the class teacher and the SENCO/Phase/Subject Leader discuss this and decide on a way forward.

A Typical Lesson – Maths – No Problem!

Lessons last approximately 1 hour and are taught daily during a morning session. Pupils start the lesson with an 'In Focus' problem, which they discuss in partners. This is a problem-solving activity, which prompts discussion and reasoning. In Key Stage One, these problems are almost always presented with objects (concrete manipulatives) for children to use. Pupils may also use manipulatives in Key Stage Two. Teachers use careful questions to draw out pupils' discussions and their reasoning.



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The class teacher then leads pupils through strategies for solving the problem, including those already discussed. At this part of the lesson, the children may record their strategy in their 'Maths Challenge Book'. The strategies may be displayed in the classroom.

The class then try some questions in 'Guided Practice'. Carefully designed variation in these questions builds fluency and deep understanding.

When they are ready to apply their learning independently, the children answer questions in their own workbook. If some children are not ready by this point, they will continue 'Guided Practice' with the teacher in a small group. If some pupils are advanced in this area of mathematics and have completed the questions independently, they will be given extra tasks to consolidate and deepen their learning, which they will complete in their 'Maths Challenge Journals'.

Cross curricular

Opportunities are used to draw mathematical experiences out of a range of activities in other subjects, such as in PE, Science and Design and Technology, to enable children to apply and use Mathematics in both real life and academic contexts.

Pupil support and differentiation

Taking a mastery approach, differentiation occurs in the **support** and **intervention provided** to different pupils, not in the topics taught, particularly at earlier stages. The National Curriculum states:

'Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.'

There is little differentiation in the content taught but the questioning and scaffolding individual pupils receive in class as they work through problems will differ, with higher-attainers challenged through more demanding problems which deepen their knowledge of the same content. Pupils' difficulties and misconceptions are identified through immediate formative assessment and addressed with rapid intervention – commonly through individual or small group support.

Challenge is also achieved through 'explain it', draw it' or 'prove it' questioning during input and next steps.

Weekly arithmetic assessments are carried out by the class teacher to ensure basic calculation skills are monitored. (see Assessment Policy for full details)



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Inclusion

Inclusion is about every child having educational needs that are special and the School meeting these diverse needs in order to ensure the active participation and progress of all children in their learning.

Inclusive practice in Mathematics should enable all children to achieve their best possible standard; whatever their ability, and irrespective of gender, ethnic, social or cultural background, home language or any other aspect that could affect their participation in, or progress in their learning.

Parents/Carers

1. The School aims to involve parents/carers in their children's learning as much as possible and to inform them regularly of their child's progress in Mathematics.
2. Parents/carers have the opportunity to meet with child's class teacher three times a year at Parents' Evening Meetings (TLCs) and receive written reports during the year.
3. Parents/carers are encouraged to speak to their child's Mathematics teacher at any point during the year, either informally or by making a specific appointment.
4. Information about their child's standards, achievements and future targets in Mathematics is shared with parents/carers at these times and also ways that parents/carers may be able to assist with their child's learning.
5. Parents/carers are encouraged to support their children with homework.
6. School also provides a number of opportunities for parents/carers to learn about what their child is learning and the way their child is being taught through parent workshops and online videos especially designed for parents.

Subject Leader

- a. The role of the Subject Leader is to provide professional leadership and management in Mathematics in order to secure high quality teaching, effective use of resources and high standards of learning and achievement for all pupils.
- b. They will achieve this by affecting the following key areas: strategic direction and development; learning and teaching (including planning and marking and presentation); leading and managing staff; and efficient and effective deployment of staff and resources.
- c. The Subject Leader has regular discussions with the Principal and other senior leaders about learning and teaching in Mathematics.