



St. Gerard's Catholic Primary  
and Nursery School



# Maths Policy Autumn 2017

# SAFEGUARDING STATEMENT

*“St Gerard’s Catholic Primary and Nursery School is committed to safeguarding and promoting the welfare of children and young people and expects all staff and volunteers to share this commitment”.*

*Safeguarding incidents could happen anywhere and staff should be alert to possible concerns being raised in this school.*

# “Mathematics knows no races or geographic boundaries; for mathematics, the cultural world is one country.”

David Hilbert, Mathematician

<b>Policy Date:</b>	<b>October 2017</b>
<b>Policy Status:</b>	<b>Statutory</b>
<b>Policy Review Cycle:</b>	<b>Annual</b>
<b>Next Review Date:</b>	<b>October 2018</b>

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The Subject Leadership role of Mathematics at St Gerard’s is central to improving outcomes for our children. Subject Leaders at St. Gerard’s have high expectations of themselves and our children, and are passionate about their specialisms. The lead for Mathematics shall ensure that the children thoroughly enjoy and partake in multiple experiences of Mathematics through teaching in lessons, external activities, external visits and residential visits.

## **Responsible to:**

Governors Head Teacher, Senior Assistant Head

## **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

## **The aims of Mathematics are:**

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 develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- **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 nonroutine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programmes of study are, by necessity, organised into apparently distinct domains, but pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge to science and other subjects.

The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. 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.

*The 2014 National Curriculum.*

### **Teaching and learning**

The school uses a variety of teaching and learning styles in Maths lessons. Our principal aims are to develop the children's knowledge, skills and understanding in Maths and prepare them for life. We ensure that children are given the opportunity to explore and developing ideas related to number and calculation. We do this best through a mixture of whole-class teaching and individual/group activities. Teachers draw attention to good examples of individual performance as models for the other children. They encourage children to evaluate their own ideas and methods, and the work of others, and say what they think and feel about them. We give children the opportunity within lessons to work on their own and collaborate with others, on projects in two and three dimensions and on different scales. Children also have the opportunity to use a wide range of materials and resources, including ICT. We ensure that Maths is learnt through lessons, visits/residential visits and external partners.

We recognise the fact that we have children of differing ability in all our classes, and so we 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:

- setting common tasks that are open-ended and can have a variety of responses;
- setting tasks of increasing difficulty where not all children complete all tasks;
- grouping children by ability and setting different tasks for each group;
- providing a range of challenges with different resources;
- using additional adults to support the work of individual children or small groups.

Plans should follow St Gerard's Calculation Policy which gives an overview of the development of addition, subtraction, multiplication and division from Reception to Year 6. Teachers should use this detailed information on progression through each strand and how to use practical resources and models to develop understanding at each stage.

### **Maths curriculum planning**

Maths is core subject in the National Curriculum. At St Gerard's Catholic Primary and Nursery School we use the national skills and objectives set out in key stages of work as the basis for our curriculum planning in Maths. We follow the Liverpool Planning Scheme.

We carry out the curriculum planning in Maths in order to cover every part of the Maths requirements of the National Curriculum.

Our medium-term plans, which we have adopted from the national scheme and a commercial scheme, give details of each unit of work for each term. These plans define what we will teach and ensure an appropriate balance and distribution of work across each term. Each class teacher is responsible for developing and using the medium term plans. Copies are available to the Subject Leader

Class teachers complete a weekly plan which includes at least five lessons. These list the specific learning objectives for each lesson and give details of how to teach the lessons. The class teacher keeps these individual plans, and the class teacher and subject leader often discuss them on an informal basis.

We plan the activities in Maths so that they build upon the prior learning of the children. We constantly assess and tailor our plans to meet the needs of the individual. This is supported through relevant Homework.

### **Teaching of Maths**

In the Foundation Stage, children are given the opportunity to develop their understanding of number, measurement, pattern and shape and space through a combination of short, formal teaching as well as a range of planned structured play situations, where there is plenty of scope for exploration.

Children will become very competent 'counters' so that their fluency with the number system provides a foundation for mathematical understanding. Counting forwards and backwards in many different sized steps as well as from different starting and ending points is essential.

Maths learning builds from a concrete understanding of concepts where children are manipulating objects. When children are able to see concepts this way, they then need to understand the same concepts represented pictorially. Children are then ready for abstract representation before being able to apply their knowledge to different situations.

We provide a rich environment in which we encourage and value creativity. Children experience a wide range of activities that they respond to, using the various senses. We give them the opportunity to work alongside other specialist adults. The activities that they take part in are imaginative and enjoyable.

## **Contribution of Maths to teaching in other curriculum areas**

### **Science**

Maths and Science are closely related. Charts, data and graphs are common in both subjects and the ability to create, read and interpret these is crucial. Geometry and algebra can also help pupils understand more complex scientific models.

### **Personal, social and health education (PSHE) and citizenship**

Maths contributes significantly to the teaching of personal, social and health education and citizenship. Children develop self-confidence and resilience by having opportunities to explain their answers and reasoning.

### **PE**

Pupils will need to link pattern, movement and time to enable them to perform high-quality routines. These cross-over elements are developed first in Maths lessons. Pupils will also use statistical data to develop their athletic performance and will need to analyse this data accurately.

### **Music**

Music makes significant use of symbols as does Maths. Both Music and Maths require counting skills in order to be able to access learning. Repeating patterns in Maths will help pupils access repeating patterns in Music.

### **Computing**

Pupils will explore directions, steps and symbols in programming lessons. This may include language heavily associated with mathematical reasoning such as 'what if?' Condition selection has its roots in mathematical language. Pupils will create, interpret and understand data in many variants.

### **Geography and History**

Both subjects require the ability to create and interpret data. Maps use keys and symbols which pupils will become familiar with in Maths lessons. Being able to understand what a graph is for is a crucial elements and objective common in both disciplines.

### **Art and Design**

Art incorporates ratio, proportion, shape, translation, measure and symmetry. All of these areas can be developed in Maths and Art to support and enrich learning in both subjects. The ability to measure, scale and reason are crucial skills in Design. Problem solving, a key requirement of Maths, features heavily in Design lessons.

### **Spiritual, moral, social and cultural development**

Groupings allow children to work together and give them the chance to discuss their ideas and feelings about their own work and the work of others. Their work in general helps them to develop a respect for the abilities of other children and encourages them to collaborate and co-operate across a range of activities and experiences. The children learn to respect and work with each other and with adults, thus developing a better understanding of themselves.

### **Teaching Maths to children with special needs**

We teach Maths to all children, whatever their ability. Maths forms part of our school curriculum policy to provide a broad and balanced education for all our children. Children who require additional support are identified on both the year groups' provision maps and the teachers' mathematics plans. Needs for these children are met through differentiated activities and adult support when appropriate. This can take place both during the mathematics lesson and through an additional intervention.

### **Assessment and recording**

We assess the children's work in Maths whilst observing them working during lessons and through assessment. Teachers record the progress made by children against the learning objectives for their lessons. At the end of a unit of work we make a judgement against the National Curriculum skills identified as ARE. The teacher records the child's attainment, and then uses this information to plan future work for each child. This method of recording also enables the teacher to make a regular assessment of progress for each child which can then inform part of the child's annual report to parents. We pass this information on to the next teacher at the end of each year.

Class teachers record pupil assessment on a tracking system and this will show progress and areas covered. Other evidence is kept through the year floor book by the class teacher/support staff. Evidence will also be collated through school and class displays, the website and Twitter feeds. This demonstrates what the expected level of achievement is in Maths in each year of the school. Teachers meet regularly to review individual evidence of children's work against the national exemplification material produced by the DfEE.

### **Resources**

We have a range of resources to support the teaching of Maths across the school. We have a wide range of concrete resources for the pupils to access independently or as directed by an adult. An audit of resources will be completed termly by the Maths team and an order will be given to the school office to replenish the resources. Specialist materials will be supplied by any specialist partners that deliver any learning or activities across the year groups.

### **Monitoring and review**

The monitoring of the standards of children's work and of the quality of teaching in Maths is the responsibility of the Maths leader. The work of the subject leader also involves supporting colleagues in the teaching of Maths and being informed about current developments in the subject. The Maths subject leader gives the headteacher an annual summary report in which he evaluates the teaching and learning in the subject, and indicates areas for further improvement. The Maths subject leader has specially-allocated regular management time, which he uses to

review evidence of the children's work, monitor assessments and when instructed by SLT to undertake lesson observations of Maths teaching across the school. All activities and visiting partners will adhere to our Safeguarding policy and procedures.

### Accountability

A annual action plan and termly summary report is produced for the Leadership team. These are then summarised by the Leadership team member with responsibility for the curriculum and shared with the Governing Body.

### Sharing learning with parents:

Every week science work will be shared using social media so parents/carers can see the learning that has taken place. All science work will be visible using the hashtag#StGerardsMaths.

### The Role of the Maths Co-ordinator:

- To review changes to the National Curriculum requirements and advise on their implementation.
- Attend relevant CPD courses for Maths as appropriate in line with the School Development plan.
- Arrange staff meetings to discuss the scientific aspects of the themes contained in the school's current scheme of work and how these might be presented in the classroom.
- Carry out an annual audit of the school's Maths resources, and operate an efficient storage system for these resources to ensure that our children can learn effectively in and through Maths.
- Liaise with the school's SENCO and MATCO regarding the progress of individual and groups of children.
- Monitor the learning and teaching in Maths and provide support for staff when necessary.
- Take a lead role in organizing Maths Events in school in line with LA and national initiatives.
- Endeavour to involve parents/ carers in their children's learning in and through science.

The Maths Subject Leader will monitor pupil progress, books and the teaching of Maths during the academic year. The Subject leader will provide a termly report to Mrs McCallum (Curriculum Lead) and a full review of the subject will be provided of each academic year.

### Agreed by Governing Body:

Date of next Review: October 2018:

