

OUR LADY IMMACULATE PRIMARY SCHOOL



"With God all things are possible"

At Our Lady Immaculate Catholic Primary School, we will inspire our children to achieve personal excellence for themselves and for the glory of God.

Mathematics Policy

Date	Review Date	Coordinator
Autumn 2022	Autumn 2024	Sophie Worth

Headteacher:	Mrs Lesley Roche
Chair of Governing Body:	Mrs Linda McSweeney

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RATIONALE

This policy describes our values and philosophy in relation to meeting the needs of all mathematical learners at Our Lady Immaculate Catholic Primary School. It outlines the framework within which all staff work, and gives guidance on planning, teaching and assessment. It is designed to describe how the school intends to meet the needs of mathematic learners of all ages.

In the first instance, this will be through working within the Foundation Stage Curriculum using the Early Learning Goals. From Y1 to Y6, statutory requirements of the National Curriculum in Mathematics will be met by fully implementing the New National Curriculum objectives using the White Rose Maths Hub mastery planning documents.

The policy is intended to be read in conjunction with the calculation policy which illustrates strategies and methods outlined in the national curriculum and that are taught from Foundation to year 6. It is also important to read the Foundation Curriculum Framework which highlights the Early Learning Goals and the guide of progression in the Foundation year.

Mathematics is a broad structure that provides a way of viewing and understanding the world. It is a creative and highly interconnected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems.

Using Mathematics, information can be:

- organised
- manipulated
- predicted
- described
- explained
- communicated
- questioned

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.

Mathematics should be taught across the curriculum to develop pupils' mathematical fluency. Confidence in numeracy and other mathematical skills is a precondition of success across the national curriculum, which we hope to achieve at Our Lady Immaculate Catholic Primary school.

Through fully adopting the mastery approach of Maths, alongside meeting the three main aims of the new national curriculum for Mathematics, we want all children at Our Lady Immaculate to develop into confident and competent mathematical thinkers, who can use maths in real life situations.

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AIMS

Our Lady Immaculate Catholic Primary School will endeavour to provide the highest possible quality of mathematical education. It will meet the requirements specified in the National Curriculum Orders.

All children will be taught to develop their mathematical skills to the best of their ability. This school will aim to provide a high standard of mathematical education that will promote knowledge, skills and understanding at all levels. The target is for all children to reach their age related expectations in numeracy, to prepare them for the world around them.

The school will offer a caring, supportive environment to enable the children to reach their potential as mathematicians from the educational provision available. In order to achieve this, our aims as teachers are:

- to encourage an enthusiastic and inquisitive attitude to mathematics
- to foster high standards of achievement in mathematics
- to develop pupils' numeracy and mathematical fluency, reasoning and problem solving in all subjects so that they understand and appreciate the importance of mathematics
- to teach children to apply arithmetic fluently to problems, understand and use measures, make estimates and check their work
- to enable children to apply their geometric and algebraic understanding, and relate their understanding of probability to the notions of risk and uncertainty
- to help children understand the cycle of collecting, presenting and analysing data
- to teach children to apply their mathematics to both routine and non-routine problems, including breaking down more complex problems into a series of simpler steps
- to equip children with strategies to enable them to apply mathematics to real and unfamiliar situations within and beyond the classroom
- to develop an appreciation of the intrinsic value and fascination of mathematics as well as its usefulness in life
- to be fluent mentally at basic 4 operation number sentence.

Thus children will be able:

- to develop a positive and confident attitude to mathematics
- to make an active contribution to their own learning, by developing the skills of independence and enquiry
- to become confident and competent working with mathematics
- to develop an understanding of the ways in which information is gathered and presented
- to become thinkers and problem solvers
- to develop a clear understanding of the language of mathematics
- to develop logical thinking and reasoning, enabling them to record work clearly and in a variety of ways

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- to develop the skills, knowledge and understanding needed in daily life

OBJECTIVES

The national curriculum identifies three main aims in the primary phase:

- to 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.
- to reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- to solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

The national curriculum states 'Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas.' Therefore, it is organised into distinct domains. However, pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems.

These domains for KS1 are:

- Number and place value
- Addition and subtraction
- Multiplication and division
- Fractions
- Measures
- Geometry: properties of shape
- Geometry: position and direction
- Statistics (Year 2)

These domains for KS2 are:

- Number and place value
- Addition and subtraction
- Multiplication and division
- Fractions (including decimals and percentages)
- Ratio and proportion (Year 6)
- Measures
- Geometry: properties of shape
- Geometry: position and direction
- Statistics
- Algebra (Year 6)

The distinct domains highlight the important areas of mathematics children need to learn to make effective progress. Through combining the national curriculum aims and the Maths hub principles our objectives are:

- A dedicated daily mathematics lesson is planned in each class in KS1 and KS2. In the Foundation Stage there will be a daily lesson, alongside opportunities for mathematical activities daily through continuous provision.
- Lessons are well structured, lively and delivered at a good pace.
- Lessons are structured to embed mathematical understanding through concrete, pictorial and abstract representation.
- Variation will be used to broaden the children's exposure to the learning objectives in a wide range of context to ensure deeper understanding of concepts.
- The foundations of mental calculation and recall of number facts are established thoroughly through daily starters which consolidate mental recall and informal/written calculations.
- Teaching, questioning and level of support will be appropriately scaffolded to ensure the children are all working towards the same learning objective, applicable to their age group.
- All children will be exposed to challenge through tasks and questioning, including further mastery standard problem solving activities for gifted and talent pupils.
- Children actively participate and are enthusiastic during their maths lessons. They will develop an appropriate mathematical vocabulary (as modelled by the teachers) using guidance from the progressive vocabulary specified in the national curriculum.

TEACHING AND LEARNING STRATEGIES

- The children are taught in discreet year groups.
- Learning will be scaffolded to support to help those who have difficulties with mathematics, as well as those who are higher achievers (in line with the aims of the NC2014, the focus is on all children achieving the same learning outcome through differing but appropriate levels of support.)
- Work is carried out using a balance of individual, paired and group work. A high proportion of lesson time is devoted to direct teaching of methods and vocabulary through modelled examples to ensure that the children are fully confident to tackle independent tasks.
- Teachers demonstrate, explain and illustrate mathematical ideas to fully involve pupils and maintain their interest through appropriately demanding work.
- Teachers use and expect pupils to use correct mathematical notation and vocabulary.
- Mathematical errors and misconceptions are dealt with as they are identified in a positive and supportive way, teaching what is right and what is not right.
- The emphasis on pupil's learning begins with practical examples leading onto informal jottings and mental strategies, and finally to formal representations as laid out for year groups in the calculation policy. Children are given a variety of

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mathematical approaches to solving problems. They are encouraged to develop their own mathematical strategies as well as learning standard methods.

- We recognise and help to develop the children's abilities to select methods for problem solving mentally, recognising that these may differ from those used to solve pencil and paper problems.
- Learning Support Assistants are trained in supporting children.
- Pupils are expected to present work carefully. Work in maths books is headed with the date, followed by the learning objective.
- The children are expected to gain a wide range of experiences with a variety of materials including IT.
- A high priority will be placed on children demonstrating reasoning and explaining their strategies.
- We have introduced 'Times Table Rockstars' and 'Numbots' to increase fluency in all times tables and number bonds, through their recitation and application in a variety of formats.
- Homework for all pupils is set in accordance with the Homework Policy. In KS1, this will include learning age appropriate multiplication and division facts and number bonds. In KS2, it will include continued practice of multiplication and division facts and at least one task related to the topic taught in class that week.
- Children will complete an assessment test on the topic(s) taught on a half-termly basis.

The school uses White Rose Maths, White Rose Maths Premium Resources and Power Maths to support the planning and delivery of Mathematics teaching and learning. Long term planning (LTP) is taken from the White Rose maths hub overviews and their lesson overviews are used to inform medium term planning (MTP). The LTP is used as a guidance tool in order to pace out coverage of the curriculum throughout the year. Short term planning (STP) outlines the topic area /focus with specific learning objectives to be taught that week. These plans detail how the lessons are to be taught, including key vocabulary, representation, fluency, reasoning, problem solving and resources required.

These plans are monitored by the Headteacher, Inclusion Manager and the Maths Subject Leader. Books are scrutinised by SLT throughout the term, with a health check completed half termly and feedback provided.

CALCULATION POLICIES

Staff at Our Lady Immaculate, follow White Rose Maths calculation policies that are in line with the National Curriculum.

Addition and Subtraction:

[file:///E:/Addition%20and%20subtraction%20calculation%20policy%20\(1\).pdf](file:///E:/Addition%20and%20subtraction%20calculation%20policy%20(1).pdf)

Multiplication and Division:

[file:///E:/Multiplication%20and%20Division%20calculation%20policy%20\(1\).pdf](file:///E:/Multiplication%20and%20Division%20calculation%20policy%20(1).pdf)

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CROSS-CURRICULAR LINKS

Mathematics is taught as a separate subject but every effort is made to link it with other areas of the curriculum. At Our Lady Immaculate, we try to identify the mathematical possibilities across the curriculum at the planning stage. We also draw children's attention to the links between Maths and other curricular work so they see that maths is not an isolated subject.

In the Early Years, these links are more evident because of the less formal timetable.

DIFFERENTIATION AND ACCESS TO THE CURRICULUM

Across the school, activities will be scaffolded to take account of the children's differing needs and abilities, to ensure all children have access to the mathematics curriculum at the appropriate standard. Children with special educational needs are supported to enable them to achieve the learning objective (see the Special Educational Needs Policy and the Equal Opportunities Policy for details.) Where necessary teachers will, in consultation with the Inclusion Manager and members of the SLT, draw up a programme of support for a child. If a child's needs are particularly severe, they will work on an individualised programme, written in consultation with the appropriate staff.

EQUAL OPPORTUNITIES

As a school we endeavour to maintain an awareness of, and to provide for equal opportunities for all our pupils in mathematics. We aim to take into account cultural background, gender and special needs, both in our teaching attitudes and in the published materials we use with our pupils.

DISPLAY

We recognise the importance of displays in the teaching and learning of mathematics. Every class has displays relevant to mathematical information appropriate to the age of the class. These may include number lines, number grids, vocabulary and other display materials that provide a visual support for the children's mental processes. In addition, each class has a "working wall" showing worked examples and mathematical vocabulary related to the topic currently being taught.

LEARNING SUPPORT ASSISTANTS

Time should be set aside prior to the maths lesson to discuss the learning objectives, main activities and the assistants' role in supporting the children and teacher. They can support a group of children; make observations and notes on focus children during the session; support an individual child and annotate work where help is given. The class teacher has overall responsibility for the effective deployment of support staff in their class.

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RESOURCES

Each class is equipped with a range of mathematical resources and apparatus relevant to the year group of that class. These are stored in accessible and clearly labelled drawers, shelves or containers. All children have access to a range of numeracy aids, such as place value cards, dice, time table squares and 100 squares.

General mathematics equipment is stored centrally in the corridor leading to year 3 and 4. These are stored in accessible and clearly labelled shelves or containers. The resources are audited, checked and updated regularly. Areas of need are monitored and equipment purchased in line with need and the School Improvement Plan (SIP).

Additional planning resources relevant to each year group to be shared amongst staff are uploaded onto OneDrive on Microsoft Teams.

ASSESSMENT AND RECORD KEEPING

Assessment is a vital tool in the teaching of Mathematics, designed to monitor children's progress and measure attainment. It is also used to inform future planning by staff at this school or the child's next school. Teachers are responsible for assessing and recording children's progress in Mathematics. Assessment opportunities are built into the planning of lessons and a range of other methods are used as appropriate. Standards are checked both in-school and through external moderation opportunities. These include:

- Children's work marked promptly and in accordance with the school marking policy and AfL policy
- Completion of the Foundation Stage Profile on-entry and at the end of the school academic year
- Summative standardised tests from Y2 to Y6 with statutory tests at the end of Years 2 and 6
- Self assessments and peer assessments by the children recorded in books
- Listening to what children say and questioning them to ascertain their level of understanding
- Half termly teacher assessments recorded on Target Tracker (to facilitate tracking and analysis)
- Observations of individuals or groups, looking for particular skills or concepts to be demonstrated
- Homework set that is appropriate and relevant to the mathematics curriculum being taught
- Moderation of children's work to agree and check the standards of attainment.

Teachers assess the standard of work against the key objectives for each year group, compare and moderate work to standards as displayed in the national curriculum. This data is recorded on Target Tracker to facilitate tracking, target setting and support the monitoring of children's progress.

At the start of the new academic year, year group expectations are discussed with the children and their parents at Parent Consultation Meetings, with a copy sent home to parents. At the end of the academic year, children's assessments are passed on to the next teacher and to the Maths co-ordinator, to identify areas for improvement. The results, together with teacher assessment, inform Parent Consultation evenings and the end of year reports.

As a statutory requirement, the report will also include whether a child has reached end of year age-related expectations in mathematics, as in the other core subjects.

MONITORING AND REVIEW

Monitoring of the standards of children's work and of the quality of teaching in Mathematics is the responsibility of the Mathematics subject leader, the Headteacher and the class teacher.

The main aspects of the mathematics subject leader involve:

- providing leadership and direction in Mathematics
- ensuring the National Curriculum is implemented effectively
- working closely with staff, offering guidance, support, leadership and arranging in-service training as appropriate
- scrutinising books frequently, completing half termly health checks and providing whole staff or individual feedback when necessary.
- scrutinising the results of termly or annual assessments throughout the school and providing feedback
- analysis of KS1 and KS2 SAT results, pupil response, teacher assessments and other standardised assessments
- managing, storing and updating resources, following a whole school audit
- monitoring and evaluating the quality of teaching and learning throughout the school in Mathematics
- monitoring pupil opinions and feedback yearly (pupil voice)
- liaising with the governor responsible for Maths, other schools and the LA
- coordinating the review and updating of the policy when necessary
- ensuring the Mathematics Action Plan is implemented, monitored, evaluated and reviewed in line with the SIP and LA priorities
- providing a termly Subject Manager's Report in which areas for further development and the progress made towards the achievement of objectives are identified

This policy will be reviewed every two years.