



# **St. Michael's School**

## **Whole School Plan for Maths**

## **Introduction**

The teaching staff of St. Michael's School devised this school plan for Mathematics. It has been produced and written in the light of the:

- School Mission statement
- 2023 Revised Primary School Curriculum
- Guidelines for Teachers of Students with Mild Learning Difficulties
- Junior Cycle Level 2 Learning Programme
- QQI Level 3 Mathematics.
- 2024 Senior Cycle Level 1 and Level 2 Learning Programme: Numeracy
- National Numeracy and Literacy Strategy 2011-2020
- Looking at our School 2016 A Quality Framework for Primary Schools
- School Self Evaluation: Mathematics

It sets out our basic approach to the teaching of mathematics and can be used as part of an induction to the school for new teachers. It was reviewed by staff on 23/05/2025. It was agreed by the Board of Management on 18<sup>th</sup> June 2025.

## **Vision Statement**

### **Rationale**

Mathematics gives pupils the language through which they can interpret, analyse, describe, make predictions and solve problems in everyday life. It allows them to participate in a wide range of mathematical experiences and relationships in school and in daily living.

In St. Michael's School we undertake to ensure that each pupil will be given the opportunity to acquire mathematical skills appropriate to his/her level of development and ability. We will stress the importance and significance of a practical approach in promoting a sound grasp of basic mathematical relationships by encouraging the pupils to use and become familiar with structural and other relevant materials. Emphasis will therefore be placed on the social value of maths, for example recognition and handling of money, reading the time, understanding time and the use of maths in everyday life situations in order to equip the pupil to participate fully in society. We will endeavour to ensure that instruction is functional and relevant at all levels.

### **Aims**

We endorse the aims of the Primary Curriculum for Mathematics which are:

- To develop a positive attitude towards mathematics and an appreciation of both its practical and its aesthetic aspects
- To develop problem –solving abilities and a facility for the application of mathematics to everyday life
- To enable the child to use mathematical language effectively and accurately
- To enable the child to acquire an understanding of mathematical concepts and processes to his/her appropriate level of development and ability

- To enable the child to acquire proficiency in fundamental mathematical skills and in recalling basic number facts.

## **This Mathematics plan will be addressed under the following headings**

### Curriculum Planning

1. Curricula and Syllabi in our School
2. Approaches and Methodologies
3. Assessment and Record Keeping
4. Pupils with Different Needs
5. Equality of Participation and Access

### Organisational Planning

6. Timetabling
7. Homework
8. Resources and Digital Technologies
9. Individual Teachers' Planning and Reporting
10. Staff development
11. Parental Involvement
12. Community Links
13. Whole School Involvement
14. Resources

## **1. Curricula and Syllabi in our School**

In St. Michael's School pupils in the Primary section of the school follow the Primary School Curriculum 2023 for Mathematics at the level of ability of the pupils in the class. Teachers ensure that their individual planning for the year incorporates all strands of the Mathematics Curriculum designated for their particular cohort of pupils. Following assessment and teacher observation, pupils in the post primary section of the school follow the Junior Cycle Level 2 Learning programme where mathematics is taught under the Numeracy Priority Learning Units. Pupils may complete the Junior Cycle Level 1 Numeracy if it is more suitable to their level of ability. Upon completion of the Junior Cycle pupils will undertake QQI Level 3 Application of Number in Everyday Life or Senior Cycle Level 1/Level 2 Learning Programme in Numeracy. Irrespective of the program a pupil follows, he/she will be taught at a level suitable to their ability.

The following is an overview of the content that is covered at each level.

### **Primary Curriculum**

In the primary curriculum, Mathematics is situated within the Science, Technology, Engineering and Mathematics (STEM) Education curriculum area. Mathematics provides an important foundation upon which to develop and refine children's learning in STEM Education. Rich learning experiences in STEM Education help children to understand relationships, connections and patterns, and to engage fully with the world around them.

In the Primary section of the school teachers follow the 2023 Revised Primary School Curriculum. Teachers select content from each of the strands and strand units at a level that suits the ability of the pupils in their class, prioritising appropriately to

pupils learning needs. Therefore, content may be selected across a number of levels of the curriculum. Where appropriate, connections should be made between and across the strands and within other areas of learning, to enhance their interrelatedness and relevance for learning.

### Aims and Objectives

- Conceptual Understanding - The comprehension of mathematical concepts, operations and relations.
- Procedural Fluency - The ability to use a variety of mathematical procedures in an effective and efficient way.
- Productive Disposition - The tendency to see Mathematics as practical, useful and worthwhile.
- Adaptive Reasoning - The capacity to use logic to understand, explain and justify one's thinking.
- Strategic Competence - The skill to devise, represent and solve mathematical problems.

### Strand and Strand Units

Algebra	Data and Chance	Measures	Number	Shape and Space
Patterns, Rules and relationships	Data	Measuring	Uses of Number	Spatial Awareness and location
Expressions and equations	Chance	Time	Numeration and Counting	Shape
		Money	Place Value and Base Ten	Transformation
			Sets and Operations	
			Fractions	

### Elements/ Mathematical Learning Opportunities



### Key Pedagogical Practices

- Promoting Maths Talk
- Using Cognitively Challenging Tasks
- Fostering Productive Disposition
- Emphasising Mathematical Modelling
- Encouraging Playfulness

For content overview see Curriculum Document.

## Junior Cycle Level 2

### Elements of the Numeracy PLU

- Managing money
- Developing an awareness of number
- Developing an awareness of temperature
- Developing an awareness of weight and capacity
- Developing an awareness of length and distance
- Using a calculator
- Developing spatial awareness
- Using data for a range of different purposes
- Using shapes
- Developing an awareness of time

More details on the Level 2 LP is available @ <https://www.curriculumonline.ie/Junior-cycle/Level-2-LPs>

## QQI Level 3 Application of Number in Everyday Life 3N0928

“The purpose of this award is to equip the learner with the knowledge, skill and competence to use the basic mathematics relevant to further education, training, and work situations, in a limited range of contexts.”

The Learning Outcomes are grouped into the following units:

- 1 Number
- 2 Measurement and Capacity

The QQI module descriptor for Level 3 is available @ [www.qqi.ie](http://www.qqi.ie)

### Senior Cycle Level 1 and Level 2 Learning Programme: Numeracy

“This curriculum area is designed to consolidate and progress students’ competency in numeracy from Junior Cycle., as well as providing students with a sense of achievement and confidence in their learning.”

Level 1: The learning outcomes are grouped into the following units:

1. Demonstrating an awareness of number
2. Understanding Money
3. Reading and Measuring Time
4. Measurement

Level 2: The learning outcomes are grouped into the following units:

1. Understanding Number and Money
2. Understanding And Managing Time
3. Understanding Measurement, Location and Position

Curriculum areas and modules can be found @[www.curriculumonline.ie](http://www.curriculumonline.ie)

## **2. Approaches and Methodologies**

### **2.1 General**

We believe the following methods will assist the pupils in realising their potential,

- Application to practical real life situations
- Adequate timetabling
- Use of concrete materials
- Frequent revision/repetition and the reinforcement of concepts through a variety of different activities
- Collaborative/Co-operative learning
- Constructivism and Guided Discovery methods
- Active participation of pupils in the learning process which will involve experiment and discussion with peers and teachers
- Collaborative teamwork to plan and implement programmes and to assess pupils on an ongoing basis.
- Consistent use of agreed maths terminology and a common approach to operations such as addition, subtraction, division and multiplication.
- Use of different teaching methods and approaches
- Grouping for maths if considered of benefit in each particular year
- Maths rich environment
- Team Teaching- where teachers have team teaching on their timetable they may avail of this time to teach maths.
- Explicit teaching of maths language.
- In SSE teaching staff and parents highlighted the areas of money, time and problem solving as posing particular difficulty for our pupils.

### **Use of Concrete Materials**

We acknowledge the importance of concrete materials in the development of mathematical concepts for pupils in all classes. We aim to use concrete materials at all levels and appropriately because:

- Concrete materials play an important role in concept development. They provide a link to connect the operational to real world problem solving situations.
- Experience with concrete materials also facilitates the development of appropriate language as pupils communicate about what they are doing and what they see happening.
- As they use models, pupils should also begin to understand the symbolism related to the operation.
- Models can then be used to help pupils learn new thinking strategies.

Teaching materials will be provided at all class levels and in every strand. Pupils will experience a variety of materials and will have the freedom to choose from these

when exploring a mathematical task. A variety of teacher designed worksheets, master books, teacher reference books and textbooks will be used in order to present work to the children in a variety of ways. Calculators and computers will enhance the implementation of the curriculum.

## **Creating a Maths Rich Environment**

Our school endeavours to contextualise the maths curricula and syllabi for pupils so that they may generalise mathematical skills and abilities in their everyday life. We encourage the following in all classrooms:

- Maths displays
- Maths games
- Number rich environment

## **2.2 Mathematical Language**

### **Mathematical Language in context**

Pupils enrol in St. Michael's School at a range of different ages and will have been exposed to a range of learning methodologies. Where the method is functioning pupils will continue to use their own method. Otherwise, we will prioritise the language and approaches of the Curriculum. There is an agreed emphasis on the language of mathematics. Formal input will be given to the teaching of mathematical language, which will be consolidated through mathematical activities on a daily basis. Explicit teaching of vocabulary connected with the 4 operations will be taught at a level appropriate to the pupils' abilities. The vocabulary used will be displayed on the walls or the whiteboard.

### **Addition**

The operation of a sum is introduced to the pupils starting with plus and equals moving on to incorporating a variety of vocabulary with similar meaning as the pupils are ready. As the pupil improves, they are introduced to more vocabulary. Initially a sum will read as  $(1+3 =)$  i.e. 1 plus 3 equals.

As appropriate, the operation and its concept is highlighted with the pupils as a direct lesson. This would involve the idea that  $1+3=$  that they are the same.

### **Subtraction**

Subtraction is introduced as a horizontal sum  $(4 - 1 = 3)$  and is read as 4 take away 1 equals 3. Additional language such as minus and subtract are used. Vertical sums are subsequently introduced also with all symbols written on the left hand side (e.g.)

$$\begin{array}{r} 4 \\ - 2 \\ \hline \end{array}$$

Pupils may begin subtraction that involves renaming (decomposition). Sums will be read in this way, from the top unit take away the bottom unit 12 (after renaming) take away 3

$$\begin{array}{r} 12 \\ - 3 \\ \hline \end{array}$$

### **Multiplication**

Pupils will be introduced to repeated addition when they are ready. We work from concrete to abstract. The teaching of multiplication will continue in subsequent classes with the level of difficulty of the sum increasing as appropriate.

## **Division**

Division will also be introduced as sharing and repeated subtraction when pupils are ready for this concept. To begin with pupils will be taught to write short division horizontally (e.g)  $8 \div 2 = 4$ . Divide, share among and how many sets of a number can be found will be the language used. Real life practical applications will be used as much as possible to explain the process. In subsequent classes pupils may be taught to write division sums in a variety of methods. Where there is a remainder it will be written as a small r.

The four operations may be introduced to the children at an earlier or later stage depending on the child's ability.

## **Tables**

The teaching of tables begins as skip counting and sequencing. Pupils may begin to learn tables according to their acquisition of the concepts of + - x and /.

### **2.2 Talk and discussion**

At St. Michael's School we strive to provide opportunities for pupils to discuss answers to a problem, discuss alternative ways of solving a problem or give oral descriptions of solutions. This is relevant to all areas of the maths curriculum and particularly in the problem-solving area. Teachers will actively model the language to be used.

### **2.3 Collaborative and co-operative learning**

We ensure that pupils learn the skills needed to work as a group rather than just in a group, e.g. listening to others, turn-taking, appreciating that others' opinions are important. Opportunities are provided for pupils to learn from their peers, e.g. think/pair/share, problem solving in groups. Each class uses a variety of organisational styles, e.g. pair work, group work, team teaching and whole class work.

### **2.4 Problem Solving**

Problems may be presented concretely, diagrammatically or in written form. Pupils will be taught a number of strategies for problem solving and to experiment with applying the same strategy to different problems. Strategies will vary according to the pupils' age and ability and teachers use a variety of approaches to meet the variety of learning styles. Pupils will be given ample opportunity to try out various strategies- concretely, orally or in a written task. Many pupils find solving problems difficult because their vocabulary is insufficient to cope with the terminology of the problems. Development of the necessary vocabulary in a consistent manner throughout the classes is stressed. Some strategies we teach pupils include:

- Constructing a model
- Drawing a diagram to illustrate a problem
- Looking for patterns in a problem
- Making a guess and testing it out
- Breaking the problem down and solving each part
- Writing a number sequence for a problem

- Using appropriate equipment to solve a problem for example, measuring instruments, calculator, blocks
- Solving a simpler version of the problem using smaller numbers.

The range of approaches utilised will depend on pupils' mathematical levels, pupils' previous experience (methods used previously), pupils' reading abilities and pupils' cognitive abilities. Pupils will be shown how to determine the information given in the problem and how to establish what information is required. Pupils will be shown how to focus on the language used and how different language indicates the various number operations to be used e.g., altogether (add), how much is left (take away) etc. The specific language of problem solving used at a pupils level will be taught and may be displayed in classrooms. As appropriate cognitive strategies may be used. One such strategy (but not restricted to) is

**R** Read

**U** Underline

**C** Calculation/Choose an operation

**S** Solve

**A** Answer

**C** Check

For the most part the problems to be solved will focus on real life situations and the skills that pupils need to cope effectively.

### ***Estimation/Rounding Strategy***

Emphasis will be placed on estimation in all classes and teachers will encourage pupils to make a sensible 'guess', to test their guess and revise it where needed. Through the use of concrete games, visual aids, practical and oral activities pupils will be taught the Rounding Strategy to assist them in estimating.

## **2.5 Using the Environment**

Mathematics is supported throughout the school environment where appropriate.

## **2.6 Skills through Content**

The following skills will be acquired by the pupils through the study of the strands of the Curriculum.

- Applying and Problem Solving e.g. selecting appropriate materials/processes in science
- Communicating and Expressing e.g. discussing and explaining the processes used to map an area in geography
- Integrating and Connecting e.g. recognising mathematics in the environment
- Reasoning e.g. exploring and investigation patterns in music
- Implementing e.g. weighing in Home Economics, measuring in Woodwork
- Understanding and Recalling e.g. recalling terminology

As a school we recognise school outings as a valuable opportunity to transfer/practice all mathematical skills.

## **Integration and curriculum links**

A cross-curricular approach will help the pupil to make connections between different curricular areas, add to the pupil's enjoyment of mathematics and encourage the transfer of learning. All the strands of the mathematics programme will be seen and taught as interrelated units in which understanding in one area is dependent on and supportive of ideas and concepts in other strands. Mathematics pervades most areas of children's lives, whether they are looking at and responding to structural forms in the visual arts curriculum or calculating how to spend their pocket money. Integration between mathematics and other subject areas such as SESE, Visual Studies, Woodwork, Home Economics etc. is always encouraged. Teachers will use the other subject areas of the curriculum to extend and reinforce mathematical concepts and skills and this will be reflected in teachers individual planning. Every effort is made to show the relevance of maths in real life and to discuss and discover where the different skills are used in real life.

## **3. Assessment and Record Keeping Procedures**

Assessment is an integral part of the teaching and learning process. Formal and informal testing of pupil may be carried out. Informal testing can include teacher observation, teacher designed tests/ tasks and samples of work completed.

Assessment of Learning and Assessment for Learning will be carried out in order to,

- Monitor pupil progression and ensure continuity
- Diagnose and assist individual pupil needs
- Provide a framework for future planning
- Ensure the primary school curriculum is covered
- Give an accurate report to all interested parties
- Recognise achievement

Forms of Record Keeping may include the following:

- Practical tasks
- Informal tests such as Criterion Reference Test i.e teacher based/designed test which may be done with assistance or independently depending on level of ability
- Tick list of objectives achieved within strand units
- QQI /L1 /L2 portfolios
- E portfolios
- JC Numeracy folder/evidence
- Teacher based observation
- On-going class tests
- Individual checklist for each pupil.
- SSE Money Checklist
- Cuntas Miosuil-preparation for teaching and learning

Work samples will be available to show evidence of work covered /attempted.

School reports and assessment results will be kept on file on a permanent basis in line with current GDPR Data protection legislation.

## School Self Evaluation

The school began a Mathematics evaluation beginning in September 2015. The decision was made to focus on Money with a target that pupils would demonstrate a progression in their use of money and apply it to real life situations independently completing practical money tasks.

Each pupil was assessed using the money checklist devised by the teaching staff at the beginning of every school year. On completion, a comparison of the results between year one and year three showed an overall improvement of 12.5%. Individual pupil's improvement varied between 0-46%.

In focusing on the teaching and learning of our pupils, the teaching staff prioritized assessment of learning and assessment for learning. Our school assesses pupils over the year in many formats. These include through the Money checklist, Sigma T in primary, class tests, observations and practical activities and assessments.

Having reviewed the impact of the school improvement plan in mathematics the staff decided to continue focusing on money and further embed the learning in this area for the foreseeable future, to continue with a revised shortened checklist and continue to provide opportunities for pupils to experience money in practical situations ensuring that every pupil will be afforded this opportunity with funding provided by the Board of Management for any pupil whose parents cannot contribute funding for activities. A second box of real money has been made available in the school for use and each class has been provided with sets of plastic money for regular use.

### 4. Pupils with Different Needs

Teachers will tailor the Mathematics Curriculum to ensure it is accessible to all pupils. Differentiation is used in each class level within the class. This may be with in the areas of expected outcome, teaching style, 1-1 support, worksheets used etc. Pupils in each class will show a wide range of ability, attainment and learning styles. Revision of topics covered is needed regularly as pupils find retention of some number's facts challenging and most pupils benefit from revision of basic facts and topics regularly.

Strategies that may be used include:

- Application of practical maths skills
- Use easily computed figures when introducing new concepts
- While the pupils will be exposed to all aspects of the curriculum certain areas must be prioritised.
- Adapting the programme to suit their ability
- More individual attention
- More concrete approach
- Emphasising maths language
- Problem solving books/Brain Teaser Books
- Maths Facts Book
- Maths games
- Maths Apps
- 2-3 step problem solving where appropriate

## 5. Equality of Participation and Access

Each pupil attending St. Michael's school will be given the opportunity to be fully exposed to the strands of the mathematics curriculum.

## 6. Timetabling

**Time Allocation: In accordance with guidelines**

<b>Primary Curriculum STEM Hours</b>	<b>Junior Cycle</b>	<b>Senior Cycle</b>
<b>minimum 3 hours per week (Jn/Sn Infants)</b>	<b>250 hours</b>	<b>180 hours over two years</b>
<b>4 hours ( 1st-6th class)</b>		

As St. Michael's is a special school, teachers need to be flexible in their approaches and use linkage and integration to their advantage in endeavouring to meet the objectives of the curriculum

## 7. Homework

Homework will be set on a regular basis. The length of the homework is not rigidly stipulated as pupils work at different rates. There are obvious occasions where it is difficult to set homework.

## 8. Digital Technologies

Teachers may use appropriate software to practice, reinforce and consolidate learning in maths. Websites including Mangahigh and Khan Academy may be accessed and these sites encourage parental involvement. The computer is a tool to enhance the implementation of the Mathematics Curriculum. Classes are timetabled to access the computer room and this time may be used for maths curriculum integration.

Some of the uses of ICT in Mathematics are:

- drill and practice
- adventure programs
- data bases
- spreadsheets
- using the internet to access materials and information
- pupils play interactive online maths games
- ICT is used to help children present their work.

ICT Resources include:

- Whiteboard.
- Whiteboard software and tools
- Online resources
- iPad with Maths apps pre-downloaded.

The following is a list of iPad Maths Apps currently being used:

- Maths Stretch (multiple topics)
- Maths Problems (visual problem solving)
- Number Frames (counting tool)
- Math Fight (2 player calculation challenge)
- Math Vocabulary (definitions)
- Pieces Basic (Diennes counting tool)
- Pattern Shape (explore geometry)
- Calculator
- Time Telling
- Telling Time
- Money Matters
- My Store Euro
- Quick Images 2 (counting fluency)
- Math Bingo New

## **Calculators**

Basic calculator skills will be taught. Calculators will be introduced when pupils have grasped basic operations of addition and subtraction. Initially they will only be used to check answers. Calculators may be introduced earlier where it is recognised that pupils with particular learning needs would benefit from using them

## **9. Individual teachers' planning and reporting**

Teachers' individual and yearly plans are informed by the Whole School Plan and Curriculum documents for mathematics. Work covered will be outlined in the Cuntas Miosuil which will be submitted to the principal.

## **10. Staff Development**

The staff are encouraged to undertake ongoing professional development in the area of Mathematics as advertised by the Education Centres and alternative professional development that may arise.

## **11. Parental Involvement**

Parents are encouraged to support the school's programme for Maths. Individual parent/teacher meetings are held annually. Parents are afforded this chance to discuss their child's progress in maths. Parents are encouraged to support the implementation of the Maths Curriculum. The school plan for mathematics is available on our school website or on request from the school office.

## **12. Community Links**

Members of the community who could make a particular contribution to the mathematics programme are always welcomed and encouraged to share their knowledge base with the school.

## 13. Whole School Involvement

The pupils will participate on a whole school level in various maths related awards/activities as they arise. E.g. Maths Week, Engineers Week, Science Week and Primary Science and Maths Awards.

## 14. Resources

We aim to provide the necessary level of resources for all pupils to enable the delivery of the Mathematics Curriculum in its broadest sense and to ensure the learning experiences match the philosophy of the school.

- Each class has access to plastic money resources.
- Maths books are available from the Maths book press.
- There is a maths press located outside the Principal's office that has resources for maths topics visited less frequently. Metre sticks, calculators, thermometers and a trundle wheel are also available.

A list of resources available in various locations accompanies this plan. Resources will be reviewed by the Maths Post Holder to identify future needs. All staff are responsible for the proper safe use and maintenance of all equipment and resources.

## Success Criteria

The criteria that will indicate success are:

- Teachers' preparations based on this plan
- Continuity of content and methodology will be evident in teachers' preparation and cuntas miosuil
- Ongoing assessment, formal and informal will show that pupils are acquiring understanding of mathematical concepts and a proficiency in maths skills appropriate to their ability.
- Procedures outlined in the plan are consistently followed
- Feedback from teachers/parents/pupils/community
- Inspectors' suggestions
- Pupils are interested in Maths
- Pupils are engaging with the Maths Curriculum

## Review and Evaluation of Plan

We as a staff endeavour to review and update this plan as the need arises. A copy of this has been made available to staff on Aladdin and on the school website for parents/guardians.

## Implementation

### (a) Roles and Responsibilities

This plan will be co-ordinated by the Assistant Principal II with responsibility for the Maths Plan. Whole staff feedback on its implementation and development will be reported at a staff meeting. This plan will be monitored and evaluated bi-annually.

**(b) Timeframe**

This plan will be implemented during the school year 2025/2026

**Review**

It will be necessary to review this plan on a regular basis to ensure optimum implementation of the mathematics curriculum in this school.

**(A) Roles and Responsibilities**

We encourage the whole school community to give us feedback so that we may continue to develop the teaching and learning of Mathematics in our school.

**(B) Timeframe**

This plan will be reviewed in 3 years or as the need arises.

**Ratification and Communication**

This plan was ratified by the Board of Management at a meeting on the 18<sup>th</sup> of June 2025. It was uploaded to the school website in June 2025.

**Signed:**

*Sr. Bernadette Carron*

**Date:** 18.06.2025

**Chairperson, Board of Management**