

**St. Nathy's College**

**Subject Department Plan  
For: Mathematics**

**2010/2011**

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## **Mission Statement**

Mathematics is a wide-ranging subject with many aspects. On the one hand it has a practical value in such areas as counting and measurement. On the other hand it deals with abstractions and logical arguments. As mathematics teachers we hope to develop in students

- An awareness of the dual nature of mathematics
- Mathematical skills and knowledge that will prepare them for state exams and for their personal fulfilment
- A respect and appreciation of the ideas and concepts of mathematics
- An awareness of the depth and significance of mathematics in all areas of life

## **Programmes and Levels**

The following Mathematics programmes are available

- Junior Cert to all levels
- Leaving Cert to all levels
- Leaving Cert Applied programme

## **Subject Aims**

A mathematics education should

1. Contribute to the personal development of the students by
  - Developing their problem solving skills and through modelling their creative talents
  - Developing their ability to handle abstractions, generalisations and logic
  - Fostering their appreciation of the creative/aesthetic aspects of mathematics

- Recognising mathematics in the world around them
  - Improving their communication skills and ability to share ideas
  - Enabling them to develop a positive attitude to mathematics
2. Help to provide them with the mathematical skills and knowledge to help them in life and work by
- Giving them confidence and competence
  - Helping them in the study of other subjects
  - Preparing them for future study

### **Subject Objectives incorporating Project Maths**

The students of mathematics should be able to

- Recall basic facts
- Demonstrate an understanding of using instruments (measurement and calculation)
- Apply their mathematical skills in a way that's meaningful to them
- Analyse, interpret and present mathematical information; in logical reasoning and argument, and in applying their mathematical knowledge and skills to solve familiar and unfamiliar problems.
- "Create" mathematics
- To appreciate mathematics in how it relates to daily life and to the world of work
- Communicate mathematics

- Have gained relational understanding of concepts in mathematics

**Coordinator:** D Dunne

**Subject Teachers:** Mr. G. Carmody, Ms. E. Conway, Mr J. Dolan, Mr. D. Dunne, Mr. B. Foy, Mr O. Feeley, Mr. J. Guilfoyle, Mr. J. Howley, Ms. C. Mooney, Mr. G. O’Sullivan, Dr. O. Redmond, Mr. T. Ronayne, Mr B. Regan.

### **Time Allocation**

1<sup>st</sup> year: 5 classes/week + ‘extra’ mathematics

2<sup>nd</sup> year: 5 classes/week + ‘extra’ mathematics

3<sup>rd</sup> year: 5 classes/week + ‘extra’ mathematics

4<sup>th</sup> year: 7 classes/week + ‘extra’ mathematics

5<sup>th</sup> year: 7 classes/week + ‘extra’ mathematics

### **Option Structure**

Mathematics is compulsory for all students

### **Junior Cycle**

**1<sup>st</sup> year:** Students are placed in mixed ability classes.

Extra classes are provided for students with special needs. A common programme is followed for all classes and a common exam is given at the end of 1<sup>st</sup> year. Based on the results of this exam and exams in other subjects, the classes are formed for 2<sup>nd</sup> year.

**2<sup>nd</sup> year/**

**3<sup>rd</sup> year:** The Higher Level option is decided during this year. Some mathematics classes are parallel and this facilitates the movement of

students, thus providing Higher Level and Ordinary Level classes. Students with particular difficulties in this subject are taught separately in classes with small numbers – and in some cases prepared for Foundation Level.

### **Senior Cycle**

Students opt for Higher Level or Ordinary Level in 4<sup>th</sup> year. Classes are parallel and this allows students to drop down to Ordinary Level. Extra mathematics classes are also provided.

### **Timetabling**

First Year: five classes each week  
Second Year: five classes each week  
Third Year: five classes each week  
Fourth Year: seven classes each week  
Fifth Year: seven classes each week  
Leaving Cert Applied: year one - 4 classes each week  
Leaving Cert Applied: year two - 4 classes each week

### **Grouping of Pupils**

#### **First Year**

All first year classes are mixed ability classes. Students with difficulties in this subject are identified at the start of the year and given special help. A common first year exam is held at the end of First Year. This together with their performance during first year is used to reorganise the classes.

#### **Second Year**

All second year classes are deemed to be higher level classes. As the year progresses some classes may develop into ordinary level classes. Paralleled classes allow for the movement of pupils between classes.

### **Third Year**

Classes continue as in 2<sup>nd</sup> year.

### **Fourth and Fifth Year**

While students are encouraged to consider Higher Level in practice, there is usually only one Higher Level class with the majority of students opting to take Ordinary Level. However with the introduction of 'Project Maths' with its revised syllabuses for both Junior and Leaving Certificate mathematics the numbers doing higher level should rise dramatically. Paralleled classes allow for the movement of pupils between Higher Level and Ordinary Level. Classes are not usually allocated for Foundation Level, but a minority of students are facilitated in pursuing this course.

### **Streaming**

- There is no streaming in 1st Year
- At the beginning of 2<sup>nd</sup> year students are divided into mathematics classes depending on their ability
- Class structure for third year allows for movement between paralleled classes
- Streaming does not occur at senior cycle.

### **Student Access to Subject/Level**

All students have access to all levels in mathematics. Students are encouraged to achieve their full potential.

### **Class Organisation**

Depending on the methodology used, students usually sit at desks and work individually.

### **Provision for Students with Special Needs**

Students with learning difficulties are integrated into regular classes and receive extra help in smaller groups. Many of these students have learning difficulties in the area of numeracy and need a great deal of support in developing skills in this area.

Extra mathematics classes ensure that these students receive the extra help that they need. Work is planned and structured to meet their needs.

### **Text Books and Course Materials**

**Junior Cert:** Discovering Maths 1  
Discovering Maths 2

**Leaving Cert:** New Concise Maths 3  
Discovering Maths 4

**Leaving Cert Applied:** Everyday Maths for LCA

### **Cross-Curricular Planning**

As mathematics is an essential tool in the study of science based subjects, it obviously has a role to play in the development of these subjects. Accordingly subjects like Physics, Chemistry and Applied Mathematics all use skills learned in mathematics classes. Other subjects such as Geography and IT are also linked in this way.

### **Subject Planning for a Culturally Diverse Society**

The universal nature of mathematics means that there is perhaps less difficulty in this area than in other subjects. However for students with little or no English it is much more difficult to keep up in class. The teachers recognise this and give extra help to students in this category.

### **Effective Teaching Methodologies**

- Planning
- Choosing Material appropriate to student's ability
- Chalk and talk
- Brainstorming / puzzles
- Quizzes
- Group work
- Paired work
- Project work
- Regular tests
- Homework
- Use of videos and DVDs
- Use of IT
  - Power Point
- Simple Computer Programmes

### **Range and Variety of Resources**

- Teaching skills and experience
- Text books
- Mathematical instruments
- Photocopied material
- Calculators
- Overheads
- Laptops
- Digital projector

### **Availability / Use of ICT Facilities**

The use of IT in the teaching of mathematics has been increasing steadily in recent years. All classrooms have access to the internet and are equipped with

laptops and overhead digital projectors which are used in the teaching of mathematics.

Junior students also have access to the computer room.

### **Provision for Health and Safety Requirements**

The Health and Safety policy of the school applies to the Mathematics classroom.

### **Homework Procedures**

- Homework is an essential component of mathematics teaching, as it helps reinforce ideas introduced in class and allows students to assess their own progress
- Homework is given and checked on a regular basis
- Homework is recorded in the student's diary. This diary is then signed each night by the student's parent or guardian.

### **Assessments / Examinations Procedures**

- Class tests given regularly
- Exams at Halloween, Christmas, Easter and Summer
- LC / JC classes sit mock exams
- Homework is monitored
- Feedback given to students
- Feedback to parents via diary and exam reports sent out during the year

### **Record Keeping Procedures**

- Examination results are recorded by teachers
- Exam results are recorded in school report books. These are retained in the school

### **Reporting Procedures**

- The school diary is used as a means of communication between teachers and parents/guardians
- Parent teacher meetings are held regularly

### **Teacher in-Service Development**

- Mathematics In-Service both in school and at teacher centres ie Project Maths
- In-Service on Stress and Classroom Management
- In-Service on First Aid