

An Roinn Oideachais agus Eolaíochta

Department of Education and Science

Subject Inspection of Mathematics
REPORT

FCJ Secondary School,
Bunclody, County Wexford
Roll number: 63550Q

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Report of the Quality of Learning and Teaching in Mathematics
Subject inspection report

This report has been written following a subject inspection in Mathematics. It presents the findings of an evaluation of the quality of teaching and learning in FCJ Secondary School and makes recommendations for the further development of the teaching of this subject in the school. The evaluation was conducted over two days during which the inspector visited classrooms and observed teaching and learning. The inspector interacted with students and teachers, examined students' work, and had discussions with the teachers. The inspector reviewed school planning documentation and teachers' written preparation. Following the evaluation visit, the inspector provided oral feedback on the outcomes of the evaluation to the principal and subject teachers. The board of management was given an opportunity to comment in writing on the findings and recommendations of the report; a response was not

received from the board.

Subject provision and whole school support

FCJ Secondary School is a co-educational school which offers the Junior Certificate, Transition Year, Leaving Certificate Vocational Programme and Leaving Certificate to its 744 students. The school operates a forty-five class period week, with a combination of thirty-five and forty minute class periods.

The Mathematics department comprises seventeen teachers. Teachers are given the opportunity to rotate the teaching of levels and programmes at junior and senior cycle as appropriate. This is good practice as it allows for the subject expertise to be maintained and developed among teachers. To ensure that this subject expertise continues within the department, consideration should be given in future planning to recruiting teachers whose main specialism is Mathematics.

Prior to entry to the school, students sit an assessment and are then assigned to one of five class groupings in first year. One class contains higher-level students only and the other four are mixed ability. Students in the mixed-ability classes remain in these Mathematics groupings until the beginning of third year when they are reassigned to a Mathematics class based on the level they choose. Each year management assigns extra teachers to Mathematics. For example, this year four extra teachers are assigned to first-year Mathematics classes with one or two extra teachers assigned to all other year groupings. This is commendable practice as it facilitates the creation of small class sizes.

Time allocated to Mathematics is good. Five class periods are allocated to all junior cycle and fifth-year class groupings, three class periods are allocated to Transition Year, and six class periods are allocated to sixth-year class groupings. Mathematics classes are concurrently timetabled from second year onwards thus facilitating students to study Mathematics at an appropriate level. Mathematics classes are generally timetabled in the afternoon and one first-year class grouping has two of its five class periods timetabled on one day of the week. It is recommended that a review of timetabling be undertaken to ensure, in so far as is possible, that Mathematics classes are more evenly distributed throughout the day and week.

Teachers are facilitated to attend relevant inservice pertaining to Mathematics. There is no specific budget allocated to the Mathematics department, however, reasonable requests for resources are met and teachers have acquired a range of resources which are retained centrally and can be accessed by all for use in their lessons.

Through the school's involvement with the National Induction Pilot Project in conjunction with University College Dublin newly appointed teachers are inducted into the school. The school's practices and procedures are identified for these teachers. In addition, newly appointed teachers have the opportunity to visit mentor teachers' lessons and vice versa. This is commendable practice.

Students are encouraged to participate in co-curricular and extra-curricular Mathematics activities. For example, students have participated in the Irish Mathematics Olympiads and the competitions arranged by the Irish Mathematics Teachers Association. Support for students in such activities is commendable.

Students in need of numeracy support are facilitated in a number of ways; initially by the creation of small class sizes which are arranged to run parallel to Mathematics classes. In addition extra support is provided during a time when students have an exemption in Irish. Such supports are to be commended.

Planning and preparation

School development planning is ongoing. In addition to the ongoing review and updating of the school plan, subject specific planning is also progressing. A regional coordinator from the School Development Planning Initiative has facilitated work in this area.

The position of Mathematics coordinator forms part of an assistant principal post within the school and Mathematics is ably coordinated. Management facilitates four formal Mathematics meetings per year. Many other informal meetings take place on a needs basis. Minutes of meetings document topics discussed and decisions taken. For example, teachers are currently collaborating to review the yearly programme of study for fifth-year students. These meetings have afforded teachers an opportunity to discuss and share best practice and are highly commendable.

To date the Mathematics teachers have collaborated to develop a very comprehensive long-term plan for Mathematics. The long-term plan for the department and associated resources are retained centrally and can be accessed by all teachers. The plan includes a list of resources, assessment procedures for each year grouping, time allocated to Mathematics and details of class grouping arrangements. In addition the long-term plan includes detailed programmes of study for each year grouping with the learning objectives for topics to be studied. The plan allows for steady progress to be made in the teaching and learning of the subject and for common assessments to take place for year groupings. This is commendable practice. In future planning for the subject, consideration should be given to the integration of Information and Communication Technology in the teaching and learning of Mathematics.

The Transition Year Mathematics programme presented details of topics that consolidate material from Junior Certificate, material from the Leaving Certificate and some puzzles and mathematical games. It is recommended that the programme for Transition Year Mathematics be reviewed to ensure that new approaches to learning of the material contained in the programme are explored. To this end consideration should be given to accessing resources and materials available on the website www.slss.ie.

Individual plans made available during the inspection were very good. Teachers used the long-term plan for the department to plan their individual programme of work. Such planning allowed for progress and smooth transition within lessons observed. Many teachers have developed supplementary materials such as handouts, charts and acetates for

use in the teaching and learning of Mathematics.

Teaching and learning

Topics encountered in lessons observed included trigonometry, functions and graphs, algebra and geometry. Lessons were presented in a confident and coherent manner and good use was made of time. Best practice included clearly stating the objectives for the lesson, which encourages all students to become fully engaged and motivated from the outset.

Terminology used in lessons was appropriate to meet the needs of the student abilities. In addition, teachers frequently made connections between sections of the syllabuses. This is very good practice and allows students to understand that Mathematics is an integrated programme rather than topics studied in isolation.

Teaching was generally of a high standard and a range of methodologies was used in lessons. In many lessons traditional whole-class teaching was the preferred method used. This involves teachers demonstrating a method and students then completing a number of questions to practise the new method. In other lessons there was very good use of a group activity or paired work, which allowed students to engage and take ownership of their learning in Mathematics while encountering the subject in an enjoyable manner. In one instance, there was excellent use of questioning strategies observed which encouraged all students to participate and to become independent learners while allowing students to develop competencies in the subject. To ensure that all students preferred learning styles are catered for it is recommended that teachers vary the range of methodologies used in lessons.

The main resources used in lessons were textbooks, handouts, the overhead projector and mathematical equipment. In some lessons greater use could have been made of differentiated worksheets. In general there were limited displays of Mathematics posters or students' mathematical work in classrooms. It is therefore recommended that such resources be acquired. This will provide teachers with an opportunity to use such displays in the teaching of Mathematics, and provide students with an environment conducive to good learning.

Teachers had good classroom management skills and had developed a good rapport with students. In many lessons teachers circulated to provide immediate assistance to students, all of which was done sensitively and discreetly. Interactions between teachers and students were very positive and teachers affirmed students' inputs.

There was evidence that teachers set high standards for their students who in turn strove to achieve them. In addition through observation of state examination results there is evidence that the uptake and achievement in higher-level Mathematics in both the Junior and Leaving Certificate is very good. The Mathematics teachers, following observation and analysis of examination results, are developing strategies for increased attainment for some students at ordinary level in Leaving Certificate. This is commendable.

Assessment

Assessment in FCJ Secondary School takes many forms; end of topic examination, class questioning and homework. Students sit formal examinations twice per year and school reports are issued for students following these examinations. Transition Year students prepare a portfolio for assessment at the end of the school year. A progress report is issued to some parents and includes comments such as student class work, punctuality and behaviour in class. Parent-teacher meetings are held for each year grouping. In addition contact between home and school is maintained via phone call. Teachers retain good records of student attendance and assessment.

The homework policy developed by the Mathematics department was clearly implemented during lessons observed. For example homework assigned was given to provide students with an opportunity to consolidate and reinforce the work encountered during that day's lesson. There is evidence that teachers monitor students' Mathematics copies and include formative assessment. In addition many teachers provided commendation to students during the lesson. It was reported that some teachers use one of the class periods in sixth year to discuss students' work. This is commendable as it provides students with an opportunity to receive individual feedback on their work and allows for clarification and opportunities to discuss areas for further study. Furthermore, students are encouraged by teachers to monitor and amend their work, which is commendable.

Summary of main findings and recommendations

The following are the main strengths identified in the evaluation:

- There is good support for Mathematics. For example management has assigned extra teachers to the teaching of the subject.
- Teaching was, in general, of a high standard and teachers have high expectations of their students.
- The long-term plan for Mathematics is very good and provides teachers with a clear programme of study with learning objectives outlined for each year grouping.
- Teachers are using the agreed Mathematics department homework policy in lessons observed.
- Students are encouraged to participate in extra and co-curricular Mathematics activities.

As a means of building on these strengths and to address areas for development, the following key recommendations are made:

- A review of some aspects of timetabling should be undertaken.
- Some aspects of the Transition Year plan for Mathematics should be reviewed.
- On occasion a greater range of methodologies should be used in lessons.

Post-evaluation meetings were held with the teachers of Mathematics and with the principal at the conclusion of the evaluation when the draft findings and recommendations of the evaluation were presented and discussed.