

An Roinn Oideachais agus Scileanna

Department of Education and Skills

**Subject Inspection of Mathematics
REPORT**

**Holy Family Community School
Rathcoole, County Dublin
Roll number: 91301D**

Date of inspection: 22 April 2010



**AN ROINN | DEPARTMENT OF
OIDEACHAIS | EDUCATION
AGUS SCILEANNA | AND SKILLS**

REPORT ON THE QUALITY OF LEARNING AND TEACHING IN MATHEMATICS

SUBJECT INSPECTION REPORT

This report has been written following a subject inspection in Holy Family Community School. It presents the findings of an evaluation of the quality of teaching and learning in Mathematics 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 deputy principal. The board of management of the school was given an opportunity to comment in writing on the findings and recommendations of the report, and the response of the board will be found in the appendix of this report.

SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT

Holy Family Community School draws its students in the main from four local primary schools while students from outlying schools also attend. The school is undergoing sustained growth in student numbers and its intake reflects the social and educational landscape of its catchment. Students transfer into first year is facilitated by a very good transfer programme which serves to familiarise the incoming students with the geography and operation of the school and to establish their educational and other needs.

A mathematics test, closely aligned to the primary school mathematics curriculum, forms an integral part of the transfer programme. This is very good practice as it not only informs the composition of the first year mathematics classes but also establishes the mathematical skills set of the incoming students. There is scope, however, to develop the use to which the outcomes of the test are put. To begin with, they should inform the design and delivery of the first-year mathematics programme and should act as a benchmark against which student progress through the programme is measured.

The scheduling of mathematics classes in junior cycle is innovative and designed to provide students with access to Mathematics at a level most appropriate to their needs and to provide ample opportunities for students to change level when the need arises. Students are banded according to ability at the beginning of first year and mixed-ability classes are formed within the bands. Mathematics classes in the lower band are split forming two smaller concurrently-timetabled classes. Student attainment in Mathematics is monitored throughout first year and the composition of the bands is reconfigured, if necessary, at the end of the year. Mathematics classes are timetabled concurrently within the bands in second and third year. This good practice allows for synchronised curriculum delivery and for the implementation of an agreed schedule of both formal and informal assessments. The time allocated to Mathematics in junior cycle is good. First year students are provided with four periods of Mathematics per week while there are five periods of Mathematics per week in second and third year.

Upon completion of the junior cycle, students can opt to enter Transition Year (TY) or go directly into the established Leaving Certificate or the Leaving Certificate Applied (LCA). Timetabling provision in senior cycle is very good. Students in TY are provided with four periods of Mathematics per week and there are six periods of Mathematics in both fifth and sixth year. In addition, there are three periods of Mathematical Applications per week in fifth-year LCA and four periods per week in sixth year. Mathematics classes are concurrently timetabled within each year of the senior cycle, are well distributed throughout the week and the balance of provision between morning and afternoon is very good.

The mathematics programme in TY is in need of review. At the time of the inspection, there were three mathematics classes in TY, one at higher level and the other two following ordinary level. The classes follow a common curriculum with a number of additional topics solely reserved for the higher-level class. While the curricular content is appropriate to the overall aims of TY, it is recommended that the programme be delivered in a mixed-ability setting and that the disparate needs of the students are accommodated through the use of differentiation and other student-centred teaching methods. Given that the mathematics classes in TY are timetabled concurrently, initiatives such as inter-class collaborative projects and rotating modules should also be considered.

Learning support provision in Mathematics is well organised and inclusive. The learning-support team play a central role in the school's transfer programme and work closely with the parents of the incoming students and the relevant teachers in the feeder primary schools to establish the students' needs, interests and aptitudes. Mathematics classes in the lower bands follow the ordinary-level syllabus. If it is deemed necessary, a foundation level class is formed in third year. The learning-support team provide advice and support and play a key role in the ongoing monitoring of student performance. In senior cycle, students have the option of entering LCA and two small mathematics classes are formed in both fifth and sixth year. A foundation-level class is also formed in sixth year if needed.

The mathematics department is well resourced. The subject department plan details the range of resources available to the department and the more recent purchases are intended to facilitate the teaching methods advocated by Project Maths. School management is committed to the ongoing development of the school's information and communication technology (ICT) infrastructure and networked banks of computers are already available in a number of locations around the school. Access to the school's ICT facilities is managed using a booking system. The phased extension of the ICT infrastructure, which will eventually see computers and data projectors in all classrooms, is underway. This is a very welcome development and will further facilitate the implementation of Project Maths in the school.

Management is proactive in supporting and promoting the continuing professional development of the staff of the school. All of the mathematics teachers have attended the workshops provided as part of Project Maths and budgetary provision is made to cover the cost of membership of the Irish Mathematics Teachers Association (IMTA) and of attendance at appropriate conferences and seminars. Teachers wishing to pursue post-graduate qualifications also receive financial support from the school. This approach, which enhances the staffs' qualifications profile and will inevitably benefit the students, is most praiseworthy.

PLANNING AND PREPARATION

Subject department planning in Mathematics is well underway. Regular meetings are held and a co-ordinator with clearly defined roles and responsibilities is in place. It is school policy that the

role of co-ordinator rotates between the members of the department and, while this is good practice, it is advised, in light of responsibilities of the co-ordinator in advising management in relation to resources, curriculum and timetable requirements, that the current co-ordinator remain in place until the initial implementation phase of Project Maths is complete. Furthermore, it is suggested that one member of the department assume the role of Mathematics ICT co-ordinator while a second takes responsibility for liaising with the Project Maths regional development officer and the IMTA regarding the implementation of the project in the school.

A very good subject department plan detailing every aspect of the department's activities is in place. The plan provides a useful structure to support ongoing department planning and to facilitate ongoing review. An essential element of such a review is the further development of the schemes of work. Currently, the schemes outline the material to be covered in each year and at each level. However, no mention is made of the intended learning outcomes or of the preferred teaching methods to be employed in achieving them. It is recommended therefore that this element of the plan be redeveloped to integrate the schemes of work, learning outcomes, suitable resources and the intended teaching and assessment methods in one matrix. Such an exercise will ensure more uniformity in curriculum delivery and assessment and will facilitate a greater degree of resource integration in lessons.

The mathematics plan for TY is also in need of review. The review should take cognizance of the recommendations in relation to TY made earlier in this report and the existing schemes of work should be altered as detailed immediately above.

The members of the mathematics department undertake an annual review of student performance in the state examinations. This is a very useful exercise and is indicative of the reflective manner in which the department operates. However, the use to which the outcomes of the analysis are put is not obvious from the planning documentation. It is therefore suggested that trends in student performance and in the number of students taking higher, ordinary and foundation levels should form an integral part of the ongoing analysis. The outcomes of the analysis should continue to be recorded in the subject department plan for Mathematics

TEACHING AND LEARNING

The lessons observed during the inspection were well prepared, had a good structure and were presented in a clear and efficient manner. Traditional teaching methods, involving teacher exposition followed by the students working individually on assigned tasks, were most in evidence. While in all such cases the teachers taught with enthusiasm and care, the greater integration of resources would have enhanced the students' experience of the lessons and would have provided a clearer context for the lesson content.

There were, however, some very good examples of resource integration. The overhead projector was used to very good effect in one instance to introduce co-ordinate geometry and in another to explore concepts in synthetic geometry. In both cases the use of resources facilitated more active student involvement and allowed the teacher to engage with students individually or in small groups when the need arose. This approach allowed the students to progress at a pace most in keeping with their abilities and was in stark contrast to the teacher-led lessons, particularly in the mixed-ability classes in first year where the pace of the lessons was dictated by the needs of the main body of students and the more able students were not sufficiently challenged.

Classroom management was, in all cases, very good. The interactions between teachers and students and between the students themselves were courteous and respectful. Good use was made

of teacher questioning and, while in some cases there was an overreliance on global questioning, there were some instances of directed questions designed to elicit factual responses from individual students and of some very good higher-order questioning. The more directed and higher-order questioning served to involve students more actively in their own learning and should be adopted by all members of the department.

The students' written work examined during the inspection was of a very good quality. In addition, they responded with confidence to teacher questioning and their performance in class formal tests offered further evidence of the quality of students' learning. Student attainment in the state examinations, when one considers the unrestricted nature of the school's enrolment, is also very satisfactory.

ASSESSMENT

The school's homework policy, which is under review, is summarised in the subject department plan for Mathematics. In line with this policy, homework is assigned at the end of each lesson and is corrected at the outset of the following lesson. The quality of verbal feedback given to students during homework correction is very good. However, the degree to which the students' copybooks are monitored is mixed. In the best cases, the copies are regularly checked and contain teacher comments and evidence of students amending their own work, while in other cases there is very little evidence of any monitoring. In order to mainstream existing good practice and to ensure that maximum benefit accrues from homework assignments, it is suggested that the homework policy that emerges from the review pays due cognisance to the role of the teacher and student in correcting and amending homework.

Ongoing assessment practices are very good. All students sit regular class tests and formal examinations are provided for non-examination classes at Christmas and prior to the summer holidays. Common papers with agreed marking schemes are provided where appropriate and the scripts returned to students contain teacher comments, corrections and suggested alternative approaches to problem solving. This is very good practice. Mock examinations are held just prior to the midterm break in the second term and written reports issue to parents following the formal and mock examinations.

The school maintains very good contact with parents. Homework and other assignments are recorded in the student journals. The class tutors and subject teachers regularly monitor the journals. If more formal contact is required, a special report form is available in the school office. A separate information evening is held annually for each year group. These meetings are attended by the relevant year head, senior management and other members of staff as appropriate the purpose of these meetings is to give parents information in relation to the programme for each year group, to address any issues and to deal with parents' concerns.. In addition, each year group is provided with one parent-teacher meeting per year.

SUMMARY OF MAIN FINDINGS AND RECOMMENDATIONS

The following are the main strengths identified in the evaluation:

- Timetabling provision for Mathematics and the arrangements in place to facilitate student transfer from the feeder primary schools and to assign them to the most appropriate level of Mathematics are very good
- Learning support provision in Mathematics is well organised and inclusive.

- The mathematics department is well resourced and management is proactive in supporting and promoting the continuing professional development of the staff of the school.
- Subject department planning is well underway, a very good subject department plan is in place and it is evident that the mathematics department operates in a reflective and collaborative fashion.
- The members of the department are committed, prepare assiduously for their lessons and teach in a clear an efficient manner.

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

- It is recommended that the TY mathematics programme be delivered in a mixed-ability setting and that the disparate needs of the students are accommodated through the use of differentiation and other student-centred teaching methods. Given that the mathematics classes in TY are timetabled concurrently, initiatives such as inter-class collaborative projects and rotating modules should also be considered.
- It is recommended that the schemes of work in the subject department plan for Mathematics be redeveloped to integrate the schemes of work, learning outcomes, suitable resources and the intended teaching and assessment methods in one matrix.
- It is recommended that the outcomes of the entrance assessment test in Mathematics inform the design and delivery of the first-year mathematics programme and should also be used as a benchmark against which student progress through the programme is measured.
- It is recommended that integration of resources in lesson delivery, evident in some instances, be adopted by all members of the department.

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

Published, February 2011

Appendix

SCHOOL RESPONSE TO THE REPORT

Submitted by the Board of Management

Area 1 Observations on the content of the inspection report

The Board of Management is pleased with the inspection report and the strengths identified. The Board is examining the recommendations with a view to their implementation.

Area 2 Follow-up actions planned or undertaken since the completion of the inspection activity to implement the findings and recommendations of the inspection.

The Mathematics department will be reviewing the TY Mathematics programme and its delivery before the end of the academic year. The inspector's recommendations will be given due consideration during that review. The Mathematics department will give cognisance to the recommended redevelopment of the subject plan during future planning meetings. The recommendations re the entrance assessment test in Mathematics will be examined with a view to maximising the benefit to the student and further informing the development of the Mathematics plan. The Project Mathematics in-service training and the recent ICT grant will enable the recommended further integration of resources in lesson delivery.