

An Roinn Oideachais agus Scileanna

Department of Education and Skills

**Subject Inspection of Mathematics
REPORT**

**Mount Seskin Community College
Tallaght, Dublin 24
Roll number: 70141N**

Date of inspection: 21 September 2010



**A N R O I N N | D E P A R T M E N T O F
O I D E A C H A I S | E D U C A T I O N
A G U S S C I L E A N N A | A N D S K I L L S**

**REPORT
ON
THE QUALITY OF LEARNING AND TEACHING IN MATHEMATICS**

SUBJECT INSPECTION REPORT

This report has been written following a subject inspection in Mount Seskin Community College, conducted as part of a whole school evaluation. 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 subject teachers.

SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT

The mathematics department in Mount Seskin Community College is highly motivated and very well organised. The department benefits from effective leadership, is very well resourced and operates in a reflective manner. Ongoing development of the school's information and communication technology (ICT) infrastructure means that the mathematics teachers have access to laptops and data projectors and to the school's computer room. The department's co-ordinator takes responsibility for sourcing suitable ICT resources and an impressive range of presentations, dynamic geometry software, and other relevant materials are now available within the department. While the use of such resources in teaching and learning was evident in a number of lessons, there is scope to enhance their wider integration across the department.

Management strongly supports teacher attendance at continuing professional development (CPD) courses and teachers wishing to pursue additional postgraduate qualifications can avail of a bursary made available by the school's board of management. All of the members of the department have attended the workshops provided as part of the national rollout of Project Maths and a number have availed of additional courses including some relating to the integration of ICT in teaching and learning Mathematics. Teachers new to the department benefit from a comprehensive induction programme and have access to a mentor from within the department. This is very good practice.

Students transferring into first year from the feeder primary schools are provided with a very good transfer programme which includes a mathematics test designed by the mathematics department in conjunction with the teachers from the feeder primary schools. The test is of a very good standard and it determines the mathematical capabilities of the incoming students very effectively. However, greater use could be made of the outcomes of the test in informing the content and organisation of the first-year mathematics programme. Therefore, it is recommended that the analysis of student performance in the entrance assessment be carried out in much greater detail than is currently the case. The first-year programme should then address any weaknesses identified by the analysis and should build on any evident strengths. The results of the analysis should also be shared with the primary schools. It is further recommended that the entrance

assessment act as a benchmark against which student progress throughout first year can be measured and that in designing the ongoing first-year assessments due regard be given to the content and outcomes of the entrance assessment.

The provision for students with special educational needs or in need of learning support in Mathematics is very good. Upon entry to the school, the majority of first-year students are placed in mixed-ability classes and follow a common programme. A small resource class is also formed to support students identified with additional needs during the transfer programme. In-class co-operative support is also provided in the mixed-ability classes if required. Very close links are maintained with the learning support department and, if the targeted students are not progressing satisfactorily, short-term withdrawal is implemented. The material covered during withdrawal models that being covered in the mainstream classes while addressing the underlying difficulties being encountered by the students.

An extra division, which allows for smaller classes, is created in second year and third year while co-operative in-class support is also available. More able students are catered for through the provision of small higher-level mathematics classes in both years. The commitment of management to the promotion of higher-level Mathematics in this manner is laudable.

The amount of time allocated to Mathematics in junior cycle is poor. Each class group in junior cycle is provided with four periods of Mathematics per week. Best practice suggests that students should have one class of Mathematics each day and so, it is recommended that a review of the timetabling provision for junior cycle be conducted and that an additional period be provided in second and in third year as soon as is practicable. The scheduling of mathematics classes in second year should also be addressed. Currently, second-year classes have mathematics classes twice on Thursdays and so have access to Mathematics classes on just three days per week. Timetabling provision for Mathematics in senior cycle is very good with the time allocated to Mathematical Application in fifth-year and sixth-year Leaving Certificate (Applied) being particularly generous.

PLANNING AND PREPARATION

Subject department planning in Mathematics is well advanced. Regular meetings of the department are held, the details of which are contained in the subject department plan for Mathematics. The matters discussed at the department meetings are pertinent to the development of the department and relate to timetabling issues, assessment and resource development. The activities of the department are managed by a co-ordinator who is appointed annually by rotation. Given the additional burden of work accruing due to the implementation of Project Maths in the school and the consequent need for continuity, it is recommended that the current co-ordinator remain in place until Project Maths is fully embedded and that a second member of the department assume the role of Project Maths officer. This role will involve collating and circulating relevant resources, identifying suitable training programmes and championing the successful implementation of the project in the school.

A very good subject department plan, which is subject to frequent review, is in place. The plan details the department's various activities and gives a very clear account of the accommodation in place to support students with special educational needs and for those from different ethnic backgrounds. Detailed schemes of work for each year and level, which model those contained in the Project Maths syllabus document, are also included in the plan. The presentation of the schemes of work in this manner is very innovative. In order to further enhance the existing good

work, it is advised that the matrix containing the existing schemes be extended to include the teaching methods and the resources to be used in realising the different learning outcomes. The modes of assessment to be employed should also be included.

Individual teacher planning is a particular strength in the department. The consideration given to the manner in which the material being covered can be made more accessible to the students and how the students' confidence in their mathematical abilities might be bolstered is exemplary. Planning for the integration of resources in lesson delivery, and for the modifications required in the approach to be adopted in lessons involving a second teacher in a support role, is also very impressive.

TEACHING AND LEARNING

The quality of teaching observed during the inspection was, in almost all cases, very good. The teachers were well prepared for the lessons, were enthusiastic and were very skilled at managing their classes and in keeping the students engaged. The vast majority of lessons had a good structure, however all of the lessons would have benefited if the lessons' objectives had been explicitly shared with the students at the outset. This strategy provides the students with a roadmap for the lesson and establishes agreed learning outcomes. The degree to which these outcomes are achieved should form an integral part of the review which should be held prior to the conclusion of each lesson.

A number of teaching methods were in evidence. In the most effective cases, the methods adopted reduced the reliance on the text book, stimulated the students' interest and clarified difficult concepts. These methods, which included ICT integration and the use of graduated worksheets, should be universally adopted across the department, particularly in the mixed-ability classes in first year. The adoption of such strategies would enable the teacher to develop lesson objectives more closely related to the needs of the students and to differentiate their lesson delivery more effectively.

Student behaviour and engagement were very good and a sense of mutual respect permeated all of the lessons. The teachers sought to generate positive attitudes to Mathematics and to persuade the students that they could engage successfully and enjoyably with the subject. Teacher questioning further underpinned the students' sense of self confidence and in the more exemplary cases served to generate solution curiosity and to engage the students in analysis and reflection.

It was evident during the inspection that school management and the members of the department are determined to enhance the quality of student learning in Mathematics. Initial steps have already been taken with the development of the entrance assessment mentioned earlier and with the introduction of an intensive programme, delivered during the students' free time, designed to improve the basic mathematical skills of the school's first-year students. The department is also working to enhance the profile of Mathematics in the school. To this end, Maths Week is celebrated annually and the school's second-year and fifth-year students participate in an engineering project supported by the Institute of Technology, Tallaght each year. In addition to these initiatives, it is recommended that the school liaise more closely with the feeder primary schools in relation to the skills set of the incoming students and that the mathematics department continue to develop the profile of the subject in the school. This could be achieved through the use of a mathematics' notice board, the dissemination of interesting and unusual mathematics challenges to be attempted by students during school breaks and occasional talks and presentations from guest speakers.

ASSESSMENT

The mathematics department recognises homework as a key vehicle in building student confidence, in reinforcing learning and in encouraging regular review of the material being covered in class. As a result, homework is regularly assigned and the correction of homework is a consistent and valuable feature of lesson delivery. The feedback provided to students while homework is being corrected is comprehensive and provides very good opportunities for shared learning. While there were issues with student compliance in a limited number of instances, these were dealt with sensitively and did not detract from the overall benefit accruing from the process.

Practices in relation to class and formal tests are very good. Class tests take place upon completion of each topic and formal examinations are held at Christmas for all classes. Examination classes sit mock examination early in the second term while the remainder sit formal examinations just prior to the summer holidays. The papers produced for the class and formal tests are of a very high standard and reflect the style and content of the certificate examinations. Common papers with agreed marking schemes are provided within levels where appropriate. During the inspection it was mooted that a series of common assessments, including class tests, would be introduced in first year. This idea is in keeping with the recommendation made earlier in this report and should be pursued.

The principal and the co-ordinator of the mathematics department conduct an analysis of student attainment in the certificate examinations each year. The outcomes of the analysis are used to inform ongoing department planning and in setting targets in relation to the uptake of higher-level Mathematics in the certificate examinations. This is very good practice. However it would be preferable if responsibility for the analysis devolved exclusively to the mathematics department and a short report detailing the outcomes of the analysis were then prepared and submitted to management.

The student diary is used very effectively to facilitate ongoing communication with parents. In addition, formal reports issue to parents of students in non-examination classes at Christmas and summer. Parents of students in examination classes receive written following the Christmas and mock examinations.

SUMMARY OF MAIN FINDINGS AND RECOMMENDATIONS

The following are the main strengths identified in the evaluation:

- The mathematics department in Mount Seskin Community College is highly motivated and very well organised. The department benefits from effective leadership, is very well resourced and operates in a reflective manner. Management strongly supports teacher attendance at continuing professional development courses and teachers wishing to pursue additional postgraduate qualifications can avail of a bursary made available by the school's board of management.
- Students transferring from the feeder primary schools are provided with a very good transfer programme and the arrangements in place to identify and support students with special educational needs or in need of learning support in Mathematics are very good.
- Subject department planning is well advanced. The department is ably co-ordinated and individual teacher lesson planning is a particular strength in the department.
- Homework and assessment practices are very good.

- Classroom management, student behaviour and engagement were very good and a sense of mutual respect permeated all of the lessons.
- Management and staff are committed to the promotion the uptake higher-level Mathematics in junior and senior cycle.

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

- The analysis of student performance in the assessment should be carried out in much greater detail than is currently the case. The first-year programme should then address any weaknesses identified by the analysis and should build on any evident strengths. The results of the analysis should also be shared with the primary schools. It is further recommended, that the entrance assessment act as a benchmark against which student progress throughout first year can be measured and that in designing the ongoing first year assessments, due regard be given to the content and outcomes of the entrance assessment.
- A review of the timetabling provision for junior cycle should be conducted and an additional period should be provided in second and third year as soon as is practicable. The scheduling of mathematics classes in second year should also be addressed.
- The current co-ordinator should remain in place until the project is fully embedded and a second member of the department should assume the role of Project Maths officer.
- The school should liaise more closely with the feeder primary schools in relation to the skills set of the incoming students
- The mathematics department should continue to develop the profile of the subject in the school.

A post-evaluation meeting was held with the principal and subject teachers, at the conclusion of the evaluation when the draft findings and recommendations of the evaluation were presented and discussed.