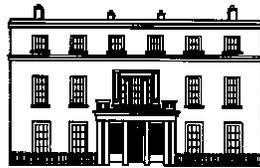


An Roinn Oideachais agus Scileanna
Department of Education and Skills

Subject Inspection of Mathematics
REPORT

Scoil Mhuire Secondary School
Buncrana, County Donegal
Roll number: 62770C

Date of inspection: 7 April 2016



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

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

INFORMATION ON THE INSPECTION

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| Dates of inspection | 6 and 7 April 2016 |
| Inspection activities undertaken <ul style="list-style-type: none">• Review of relevant documents• Discussion with principal and teachers• Interaction with students | <ul style="list-style-type: none">• Observation of teaching and learning during seven class periods• Examination of students' work• Feedback to principal and teachers |

MAIN FINDINGS

- The quality of teaching and learning observed ranged from outstanding to fair.
- Teaching resources, including information and communication technology (ICT), were used effectively.
- All teachers made very good use of questioning to involve students and assess learning.
- There is very good whole-school support for Mathematics.
- The mathematics teachers in the school are highly qualified and bring a range of valuable skills to their work.
- A very good subject plan has been developed.

MAIN RECOMMENDATIONS

- In order to promote consistency in students' experience across the subject department, the good practice identified in many classrooms, and outlined in the teaching and learning section of this report, should be shared and enhanced through the peer observation programme already underway in the school.
 - Training in the use of group work should be accessed by the mathematics teachers.
 - The links between sections of the syllabuses should be highlighted in the programmes of work for each year group and level.
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INTRODUCTION

Scoil Mhuire is a co-educational voluntary Catholic secondary school under the trusteeship of Catholic Education an Irish Schools Trust (CEIST). It has a current enrolment of 635 students. The school provides all of the Junior and Leaving Certificate programmes. Transition Year (TY) is optional for students.

TEACHING AND LEARNING

- The quality of teaching and learning ranged from outstanding to fair.
- The highest-quality learning was evident where a series of well-designed tasks facilitated students in working together to connect new learning to existing knowledge, with limited yet appropriate teacher input. The teacher's role was in preparing the tasks, posing problems, monitoring participation and consolidating learning through emphasising the key concepts. This methodology helped to differentiate learning effectively and provided very high levels of challenge and stimulation for all students.
- Excellent practice was seen where students engaged with each new concept as a practical problem, and discussed it until it made sense to them. An example of this was where they were asked to come up with a logical system for organising raw data. Such an approach allowed students to have fun with Mathematics, to develop appropriate analytical skills and to experience the satisfaction of solving problems.
- In all of the classrooms visited, the desks were arranged appropriately for student group work. This is a good first step in encouraging students to discuss Mathematics in order to become fluent in using mathematical language, formulate mathematical arguments and justify their reasoning. While most teachers incorporated group or pair work in their lessons, it was observed that the use of such activity was more effective in some classes than in others.
- A less-effective methodology which focused on procedure with an over-reliance on teacher instruction was used in a small number of lessons. In the main, students were passive in these lessons and some students were disengaged from the learning process. Activities to facilitate students' active engagement should be used in all lessons.
- The focus of the work in some lessons was on practicing routine methods in familiar contexts. In order for students to be confident in working in unfamiliar mathematical settings, it is recommended that they be given opportunities to develop independent thinking skills in all lessons.
- ICT was used effectively in most lessons. A common template slide—containing sections for learning outcomes, key words, date, and lesson material—was used to very good effect. Geometry software was used skilfully to compare graphs and clarify learning in one lesson. Video clips and games were also seen to add interest and enjoyment to lessons.
- All teachers made very good use of questioning to involve students and assess learning. Questioning was most effective when open questions were used to progress students' thinking and discussion or to develop conceptual understanding. In some cases, the very good oral teacher questions could have been used to create a written task for students to work on independently; such a strategy is recommended.
- Excellent use of *assessment for learning* (AfL) strategies was observed in one lesson. In this lesson, questioning was used at every stage to encourage students to engage on a very

deep level with all of the key learning. Students' thorough understanding of the concepts taught was evidenced by the exceptionally high quality of the questions generated by the students themselves.

- Good attention was paid to literacy in all lessons. Keywords were highlighted and, where appropriate, their every-day meanings were used to help explain mathematical concepts.
- The relationships between students and their teachers were warm and encouraging in all lessons. Classroom management was very good and students behaved very well.

SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT

- Mathematics is allocated very good time on the school's timetable. Concurrent timetabling is provided to enable students to study the subject at a level appropriate to their ability. A very good range of resources, including ICT, is provided for the subject.
- First-year students study Mathematics in mixed-ability groups. In keeping with good practice, they are assigned to higher and ordinary-level mathematics classes from second year onwards.
- The mathematics teachers have Mathematics as a main degree subject or hold post-graduate qualifications in Mathematics and bring a range of valuable skills to their work. Attendance at continuing professional development (CPD) courses is well supported by school management.
- The school has introduced a peer-observation programme recently where teachers, within and between subject departments, observe a peer lesson. This is a valuable initiative. It is very good that most of the mathematics teachers are involved. In order to promote consistency in students' experience across the subject department, the good practice identified in many of the classrooms, and outlined in the teaching and learning section of this report, should be shared and enhanced through peer observation.
- In developing the whole-school numeracy plan, the need to provide opportunities for collaborative learning was identified by the school's numeracy team. As mentioned above, teachers have arranged the desks in their classrooms to encourage group work. However, a need for some teachers to further develop the skills of good group work was evident in some of the lessons observed. It is recommended, therefore, that teachers access such training as part of their CPD.
- Very good provision is made for students with special educational needs. All of the mathematics teachers have a keen awareness of students' needs and of the best strategies for supporting students.
- Valuable extra-curricular opportunities, such as participation in *Team Maths*, and the celebration of *Maths Week* and *World Maths Day*, are provided for students.

PLANNING AND PREPARATION

- A co-ordinator for the subject department is appointed on a rotational basis. The members of the mathematics department collaborate well through engagement in the subject planning process and in sharing resources.
- A very good subject plan has been developed. The plan includes programmes of work for each year group and level which set out learning intentions appropriately linked to the

wide range of resources used. The literacy and numeracy strategies to be used in lessons are also included. It is recommended that, over time, links between sections of the syllabuses be highlighted in the programmes of work.

- The subject department members complete a comprehensive analysis of student achievement in the Certificate Examinations. In keeping with good practice, this analysis is used to inform planning for the subject.

The draft findings and recommendations arising out of this evaluation were discussed with the principal, deputy principal and subject teachers at the conclusion of the evaluation. 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.