

An Roinn Oideachais agus Scileanna

Department of Education and Skills

**Subject Inspection of Mathematics
REPORT**

**Coláiste Mhuire,
Ratoath Road, Dublin 7
Roll number: 60450U**

Date of inspection: 16 September 2014



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

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

INFORMATION ON THE INSPECTION

Dates of inspection	15 and 16 September 2014
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 eight class periods• Examination of students' work• Feedback to principal, deputy principal and teachers

MAIN FINDINGS

- The quality of teaching ranged from fair to very good with a good standard evident in the majority of lessons.
- Senior management's commitment to and support for the subject is excellent.
- The use of the target language and subject specific terminology was very good.
- The mathematics department comprises a committed and hardworking team who have recently streamlined their practice and procedures.
- Effective use was made of information and communication technology (ICT) in many of the lessons observed.
- There are excellent opportunities for students to participate in co-curricular and extra-curricular mathematics events.

MAIN RECOMMENDATIONS

- Teachers should ensure that there is a clear rationale for choosing group activities and that students are fully cognisant of their individual and collective roles and responsibilities in order to maximise learning opportunities.
 - Questioning strategies that encourage greater student discussion about Mathematics should be utilised more in all lessons to further promote learning and understanding.
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INTRODUCTION

Coláiste Mhuire is an Irish medium co-educational post-primary school under the patronage of ERST (Edmund Rice Schools Trust). The school has an enrolment of 236 students and offers the Junior Certificate, the established Leaving Certificate and a compulsory Transition Year (TY).

TEACHING AND LEARNING

- The quality of teaching ranged from fair to very good with a good standard evident in the majority of lessons.
- Teachers' preparation for lessons was very good. Classroom management was effective and interactions between teachers and students were positive.
- The use of the target language and subject specific terminology was very good both by the teacher and during exchanges with students.
- Learning objectives were recorded on the whiteboard and explicitly stated during all lessons. In many lessons, teachers took time to review objectives during or at the end of the lesson. This is very good practice and should be extended.
- Methodologies used in lessons included teacher-led instruction and student activity. The quality of these approaches was mostly good.
- The effectiveness of group work in lessons varied but was most successful when students had a clear understanding of what was to be achieved by them. This enabled them to take ownership of their learning. For example, during the teaching of a statistics lesson, students worked in groups to match the definition of a word with a phrase. In this lesson the level of student discussion and collaboration was very good.
- In some group activities, however, many students worked independently rather than collaboratively. It is therefore recommended that students have a clear understanding of their specific roles and responsibilities in the completion of an activity. This should ensure that all students have the opportunity to contribute to the activity thereby maximising their learning potential. This should also promote greater dialogue within group work while serving to deepen students' understanding of Mathematics.
- Effective use of challenging questions was observed in a minority of lessons and resulted in very good discussion. In such lessons students had opportunities to deepen their understanding of the topic and provide justification for their answers. Phrases such as "what do you think" or "explain your answer" were frequently used. The use of such practices is very good and should be used more often in all lessons.
- In some lessons, procedural questions dominated which required students to recall facts or to provide the next step in the solution. It is recommended that all teachers ensure that questioning strategies are sufficiently robust in order to challenge students' understanding of concepts.
- A range of resources were effectively used in lessons and included the use of ICT, show me boards, PowerPoint presentations and teacher prepared hand-outs. During the teaching of the use of questionnaires effective use was made of a video clip to support the demonstration of biased questioning.
- Teachers are classroom based and there were many displays of students' work, subject specific materials and projects that had been entered into the BT Young Scientist & Technology Exhibition. Such displays enhanced the learning environment for students. The layout of one classroom, whereby student desks were grouped together was effective

and should be extended to other classrooms to promote collaborative learning among students.

- Homework was assigned in all lessons and allowed for the consolidation of work encountered during the lesson. A review of students' homework indicates that teachers are monitoring students' work. The practice of giving formative written feedback however, varies. This is an area that should be developed further among members of the mathematics department.
- Students' attainment in examinations is reviewed and areas for improvement have been highlighted. Initiatives to support such improvements include the school's Numeracy improvement plan, the promotion of Mathematics through co-curricular and extra-curricular events and timetabling arrangements. Some progress has been noted, however, it is recommended that teachers remain vigilant to ensure improvements in junior cycle are maintained and that they continue into senior cycle.

SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT

- Management's commitment to Mathematics is excellent and is evident in the timetabling arrangements. These include an appropriate time allocation in line with syllabus requirements, concurrent timetabling from second year onwards and the deployment of additional teachers to the subject.
- Commendably a class period has been allocated to the current TY students for additional work on numeracy.
- Appropriate practices and procedures are in place to facilitate student access to a level most appropriate to their ability.
- Four teachers are deployed to teach Mathematics the majority of whom are graduates in the subject. To ensure that there is sufficient capacity within the department one teacher will soon participate in the upskilling programme provided by the Department of Education and Skills. This is welcomed.
- Management is very supportive of teachers' continuing professional development by facilitating attendance at Project Maths in-service and paying membership of the Irish Mathematics Teachers Association (IMTA). In addition, requests for subject specific resources are also granted.
- Co-curricular and extra-curricular activities available to students are excellent. These include participation in events arranged through the IMTA, Maths week and the Irish Mathematical Olympiads. Collaboration with Trinity College, Dublin, has resulted in TY students participating in the Student Leadership and Maths (SLAM) program and the establishment of a maths club in the school.
- Arrangements for students who find Mathematics challenging and for more able students are very good. These are facilitated, for example, through the allocation of additional time and by the creation of small class groupings.

PLANNING AND PREPARATION

- The mathematics department comprises a committed and hardworking team. The organisation of the department has benefited from the recent streamlining of practices and

procedures. Commendably, the school's ICT network is used to retain shared mathematics materials, planning documents and sample resources.

- Formal and informal meetings take place and minutes are recorded on a school developed template. A high level of collaboration and agreement among members of the department is evident in these minutes.
- Time at meetings should focus on discussing and sharing best practices for teaching common aspects of the curriculum. Learning from the school's peer observation initiative could usefully be used at mathematics meetings to discuss appropriate teaching and learning strategies.
- Subject department planning is well progressed and schemes of work have been developed for each year group and level. To support work in this area teachers should include suggested methodologies that support the teaching of each topic.
- A review of the TY Mathematic's plan is recommended to ensure that the programme offers students the opportunity to study material other than that on the leaving certificate syllabus.

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, and the response of the board will be found in the appendix of this report.

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 satisfied that the inspection identified that *“the mathematics department comprises a committed and hardworking team who have recently streamlined their practice and procedures”*

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

- There are two new sub-committees established within the teaching staff (a) sub-committee on assessment for learning and (b) subcommittee on the four part lesson (to support the self-guided instruction). Members of the subcommittees will work together for a year and then new committees will be created to extend the learning among all teams.
- The recommendation on learning outcomes has been discussed with staff and suggested that more questions be used during the class to monitor students' understanding of the learning outcomes.
- The recommendation for further higher-order questions and dialogic teaching was discussed with teaching staff and this will happen in the first place, within the subcommittee on assessment for learning. Additional supports will be provided by senior management this approach as well.