

**An Roinn Oideachais agus Scileanna**  
**Department of Education and Skills**

**Subject Inspection of Mathematics**  
**REPORT**

**Cnoc Mhuire Secondary School**  
**Granard, County Longford**  
**Roll number: 63730S**

**Date of inspection: 7 April 2016**



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

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

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**INFORMATION ON THE INSPECTION**

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

**MAIN FINDINGS**

- The quality of teaching and learning was very good in the majority of lessons with good practice evident in the remainder.
- Very good lesson planning was a feature of the best lessons which resulted in the learning intention being rigorously explored.
- Differentiation of the lesson content was a key feature of the lessons where the highest quality learning was evident.
- Resources were integrated to very good effect in the majority of lessons.
- Mathematics is strongly supported by management and the mathematics department is very well resourced.
- Subject department planning in Mathematics is good.

**MAIN RECOMMENDATIONS**

- The school's homework policy should be customised by the mathematics department to more accurately reflect the role of homework in learning Mathematics.
  - The existing plan for Mathematics in TY should be reviewed.
  - Planning in Mathematics should now focus on agreeing common approaches to introducing and teaching algebra in junior cycle.
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## **INTRODUCTION**

Cnoc Mhuire is a voluntary, co-educational secondary school operating under the trusteeship of Catholic Education An Irish Schools' Trust. It provides a broad curriculum including the Junior Certificate, an optional Transition Year (TY) programme, the established Leaving Certificate and the Leaving Certificate Vocational Programme. At the time of the evaluation the school had an enrolment of 457, more than half of whom were boys.

## **TEACHING AND LEARNING**

- The quality of teaching and learning was either very good or good with the majority of lessons in the former category. In all lessons the teachers modelled positive attitudes to Mathematics, taught with enthusiasm and encouraged the students to do their best.
- A variety of teaching methods was in evidence. These included traditional teacher-led approaches, active student participation through group and pair work, discovery and exploratory learning and the innovative integration of resources.
- The most effective lessons featured very good lesson planning. In such cases, the learning intention was well thought out and fully interrogated during the course of the lessons. These lessons also featured the inclusion of rich tasks that allowed the students to engage with the lesson content at an appropriate level and had sufficient depth to challenge the more able students.
- In lessons where there was scope for improvement, the lesson content was treated in an overly procedural fashion and the rationale for the approach being adopted in solving problems was not fully explored. This approach resulted in learning that was not as deep as it might have been.
- Where learning was best it was facilitated through differentiation of the lesson content and the provision of support for students at the point of need. The use of individual whiteboards in one lesson, for example, allowed the teacher to circulate and support individuals and small groups as they engaged with various tasks. Students' learning was greatly enhanced through the quality of questions with which the students engaged and the use of student-led discussions to share the outcomes of the different groups' deliberations.
- The quality of resource integration was very good in the vast majority of lessons and added considerably to student appreciation and understanding of the lesson content. In one particularly innovative instance, video was used to illustrate distance-time graphs and encourage the students to hypothesise as to the shape of the graph that would best model each situation depicted.
- The use of the school's virtual learning environment (VLE) adds greatly to the students' experience of learning Mathematics. The VLE enables greater autonomy in student learning and allows them to collaborate with their teachers on issues that arise when doing homework. It also provides students with access to relevant, locally produced, materials when necessary.
- Practices in relation to assessing student progress in Mathematics are very good. Assessment for learning, including the use of the learning intention, high-quality teacher questioning and the provision of formative feedback was evident in the vast majority of lessons. In the best cases, teacher questioning included higher-order questions that elicited deep and thoughtful responses from the students.

- Classroom management and student behaviour and engagement were very good in all lessons.

#### **SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT.**

- Timetabling provision for Mathematics is very good. The time allocated to teaching Mathematics is generous and the scheduling of mathematics lessons allows students to follow higher level for as long as possible and to change level without adversely affecting the remainder of their timetable.
- Management and the mathematics department appreciate that one role of junior cycle Mathematics is to prepare students for the rigours of senior cycle. To this end, all students who express the preference are facilitated in following higher-level. This approach is proving very successful in Mathematics and at the time of the inspection, three of the four class groups in second year were taking higher-level.
- The mathematics department is very well resourced and the mathematics teachers have been very proactive in developing a huge range of resources of their own. These resources are readily accessible on the school's shared drive and are indicative of the industrious and collaborative approach to subject planning adopted by the mathematics department.
- The qualifications profile of the mathematics department is good. Currently two of the mathematics teachers are doing the postgraduate diploma in Mathematics provided by the Department of Education and Skills through the University of Limerick. This will greatly enhance the department's existing profile. The department's members' commitment to their own continuing professional development is also evident from their full attendance at the workshops provided to support the rollout of Project Maths.
- The school provides an impressive range of co-curricular and extra-curricular activities relating to Mathematics. Applied Mathematics, for example, has recently been introduced in senior cycle and is being provided after school. Consideration is now being given as to how it might be incorporated into the school's timetable
- Very good whole-school policies on homework and assessment are in place and are effectively implemented by the mathematics department. However, it is recommended that the homework policy be customised by the mathematics department to reflect the particular needs of Mathematics. The policy that emerges should include the role of homework in developing the students' problem-solving and problem-posing skills and should reflect the role now being played by the VLE in facilitating collaborative and independent learning.

#### **PLANNING AND PREPARATION**

- Subject department planning in Mathematics is well advanced and is characterised by a spirit of collaboration and innovation. Effective planning in Mathematics is facilitated by very good whole-school planning structures and the leadership and vision provided by the department's co-ordinator. As a result a good subject department plan is in place.
- Given the development of the VLE, the majority of the mathematics plan should be migrated onto the shared drive and a short document detailing the schemes of work, agreed delivery schedules, approaches to teaching key concepts and preferred teaching methods should be prepared and maintained in hard copy.

- A separate plan for Mathematics in TY has been developed and should be reviewed. The review should result in a plan written in terms of learning outcomes and reflecting the role of TY in reinforcing students' prior learning and facilitating exploration and collaboration. One approach that might be considered is the inclusion of problem-based project work, mediated through the use of dynamic software.
- Planning in Mathematics in the medium to short term should focus on agreeing common approaches to introducing algebra in junior cycle and incorporating a functions-based approach in delivering this element of the curriculum.

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The draft findings and recommendations arising out of this evaluation were discussed with the principal and subject teachers at the conclusion of the evaluation. The board accepts the report as the final inspection report available for publication and wishes to respond formally to the report. The board agrees that the response submitted will be included as an appendix to the published report. The board's response is submitted below.

# **Appendix**

## **School response to the report**

### **Submitted by the Board of Management**

**Part B: Follow-up actions planned or undertaken since the completion of the inspection activity to implement the findings and recommendations of the inspection**

The Board of Management can confirm that the following is happening in relation to recommendations:

- The TY mathematics plan review is almost complete
- The customised mathematics homework policy will be reviewed at the next meeting of the mathematics department.
- Planning in mathematics is currently focused on common mathematics terms and will then focus on agreeing common approaches to introducing and teaching algebra.