

**An Roinn Oideachais agus Scileanna**

**Department of Education and Skills**

**Subject Inspection of Mathematics  
REPORT**

**Abbey Community College  
Ferrybank, County Waterford  
Roll number: 76082H**

**Date of inspection: 15 March 2013**



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

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## **INFORMATION ON THE INSPECTION**

<b>Dates of inspection</b>	14 and 15 March 2013
<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></ul>	<ul style="list-style-type: none"><li>• Observation of teaching and learning during nine 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 observed was mostly very good or exemplary with scope for development in a small number of lessons.
- There were some very good examples of effective teaching and questioning strategies that provided students with opportunities for meaningful engagement in their learning.
- Information and communication technology (ICT) and a range of resources were successfully used to support learning in many classes and this good practice is commended.
- Many students demonstrated very good understanding of mathematical concepts, frequently used subject-specific terminology and made connections between areas of the syllabus.
- The promotion of Mathematics in the school is excellent with many opportunities for students to engage with the subject through co-curricular and extracurricular activities.

## **MAIN RECOMMENDATIONS**

- The effective use of teaching and questioning strategies that will engage students in their learning should be extended, in a small number of lessons, where this is needed.
  - The mathematics department should collaboratively plan and develop schemes of work, which are based on the various strands of the Project Maths syllabus.
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## INTRODUCTION

Abbey Community College is a co-educational post-primary school with a current enrolment of 676 students. The school offers the Junior Certificate, the Leaving Certificate Vocational Programme (LCVP) and the established Leaving Certificate. The school also has an optional Transition Year (TY) programme.

## TEACHING AND LEARNING

- During the two day evaluation nine single mathematics lessons were observed. The quality of teaching and learning observed was mostly very good or exemplary with scope for development in a small number of lessons.
- In almost all lessons, clear objectives were established and the lessons progressed at an appropriate pace allowing for meaningful learning to take place. In most lessons, appropriately high expectations were established and students responded accordingly. In some lessons, topics were set in real life contexts with very good use made of the internationally recognised, World *Pi* Day to support learning in Mathematics.
- In most lessons, a range of effective teaching methodologies was observed. This included the use of a discovery approach during a complex number lesson and group work during a TY lesson. Such approaches, as promoted by Project Maths, encourage students to take ownerships of their learning, provide them with opportunities to work collaboratively and draw conclusions while deepening their understanding of Mathematics. In a few lessons, however, the chosen methodology was mostly teacher led. This approach was not sufficiently engaging and resulted in some students becoming over reliant on their teacher. The use of more active methodologies as promoted by Project Maths is recommended in these lessons.
- Questioning strategies observed were mostly exemplary. In almost all instances, higher-order questions dominated teacher-student exchanges and frequent use was made of statements such as “explain your answer” or “why”. During a junior cycle algebra lesson, students’ questions were skilfully integrated into the lessons as a learning opportunity for all students. In a few lessons, however, questioning was mostly procedural and provided limited learning opportunities. In such instances, the use of more challenging questions is recommended.
- Many students demonstrated very good understanding of mathematical concepts. Students frequently used subject-specific terminology and made connections between areas of the syllabus.
- In most lessons, resources were effectively used to support student learning. For example, show me boards were used at key junctures of lessons allowing teachers to make use of assessment for learning strategies. Equally effective was the use of coloured markers to highlight important points during an integration lesson.
- ICT was successfully used to support learning and included the use of a PowerPoint presentation, a short video and various interactive websites. Interactive mathematical software was effectively used to demonstrate accuracy in presentation and to draw conclusions during a lesson on mathematical functions. However, in a few lessons, the use of the available ICT facilities or other supplementary materials would have supported learning particularly in the lower stream classes.
- Many teachers are classroom based and in most instances, a wide range of subject-specific material was displayed. Many of the classrooms are arranged traditionally where

students are seated in rows. Consideration should be given to the re-organisation of classrooms into small co-operative learning groups, as this would further support the integration of appropriate Project Maths strategies into lessons.

- Common assessment in school based examinations has been introduced which is very good practice. Students' copybooks and examination papers were reviewed during the evaluation and there was evidence that teachers are monitoring student work with some very good examples of detailed written feedback providing suggestions for further development. This practice should be extended further where appropriate.

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

- Timetabling arrangements are mostly very good. However, this year an anomaly in the timetabling does not facilitate daily contact with the subject for second-year students. In order to support the Literacy and Numeracy Strategy the practice of allocating daily contact with the subject is encouraged.
- Students in first year and TY are taught in mixed-ability groups. All other year groups are set on the basis of ability for Mathematics. This practice of creating streamed class groupings is not best practice and may inhibit some students' overall performance in Mathematics. It is therefore recommended, that a review of class formation be undertaken with reference to current research in this area.
- The mathematics department comprises ten teachers some of whom have limited contact with the subject this year. This may inhibit the development of a strong cohesive subject department. The possibility of forming a core group of mathematics teachers, each of whom is allocated substantial contact time with the subject, should be considered.
- There are excellent opportunities for students to participate in a varied range of co-curricular and extracurricular Mathematics competitions both nationally and internationally. The use of the school foyer and Television positioned in student social area were used to promote *Pi* Day and Mathematics related activities.

#### **PLANNING AND PREPARATION**

- The position of coordinator of the subject is rotated ensuring that all teachers are given an opportunity to share in the responsibility of the organisation of a department. Formal meetings take place once a term and minutes of meetings are retained. This is good practice.
- A mathematics plan has been developed comprising organisational details and minutes of subject department meetings. A listing of chapters from a textbook is identified for each year group and level. However, this information is insufficient and does not identify the skills and competencies to be achieved by students in each year in Mathematics. It is therefore recommended that, the mathematics department collaborate to develop schemes of work based on the relevant strands of Project Maths and support materials such as Project Maths Teaching and Learning plans.
- The mathematics department's analysis of students' performance in examinations has identified a cohort of students who are taking ordinary level in junior cycle and performing very favourably at this level. Specific strategies to increase the uptake of higher-level Mathematics in junior cycle should be progressed.

- In almost all lessons, individual planning was very good. In a small number of lessons, there was scope to plan for the use of effective teaching strategies and the integration of appropriate resources.

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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 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.