

An Roinn Oideachais agus Scileanna

Department of Education and Skills

**Subject Inspection of Mathematics
REPORT**

**Mount Sackville Secondary School
Chapelizod, Dublin 20
Roll number: 60120W**

Date of inspection: 13 February 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	11 th and 13 th February 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 seven class periods• Examination of students' work• Feedback to principal and teachers

MAIN FINDINGS

- The quality of learning and teaching observed was excellent in the lessons observed.
- Teachers strongly support students in reaching their potential.
- Whole-school support for Mathematics is very good.
- The quality of curricular and lesson planning for Mathematics is very good.
- The mathematics teachers reflect on their work and evaluate their practice well in order to promote ongoing improvement.

MAIN RECOMMENDATIONS

- Students should be given additional opportunities to work on unfamiliar material, connected concepts from other areas of the syllabus and mathematical problems.
 - Student intake data should be included in the evidence base for analysing achievement in the certificate examinations.
 - The need for the provision of an additional teacher for some class groups should be evaluated.
 - The teachers' very good practice of sharing experience and expertise should be further developed through engagement in collaborative lesson planning and peer observation.
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INTRODUCTION

Mount Sackville Secondary School is a fee-charging, voluntary Catholic secondary school with a current enrolment of 619 girls. Transition Year (TY) is compulsory for students.

TEACHING AND LEARNING

- The quality of learning and teaching observed was excellent. A notable feature of all lessons was very high quality planning for the progression of the concepts, student engagement, questioning strategies, and use of resources and materials to support learning.
- Teachers made very good use of questioning to encourage mathematical thinking and to assist students in fully exploring the lessons' ideas. Students were regularly asked to describe what they noticed or to make connections and teachers encouraged them to think for themselves. These very good practices are in keeping with the spirit of *Project Maths*.
- The lessons included a range of methodologies such as group and pair work, direct teacher instruction, and discovery and investigation. These were all used in a student-centred way that optimised student input. The materials prepared were designed to engage students and capture their interest. The mathematics department has worked very hard to ensure that the resources and methodologies that are used promote a positive attitude to Mathematics and encourage students to enjoy the subject.
- All of the lessons were designed to allow students autonomy to be independent learners. Teachers provided general problem solving advice rather than direct help and encouraged students to persist even when they found the work difficult. Students were facilitated in discussing mathematical ideas and exploring concepts together. Teachers also gave tasks with very clear instructions that allowed students to develop skills and to develop their understanding of a concept without additional teacher input. This excellent approach is very valuable in enabling students to gain confidence in their own ability to solve mathematical problems.
- There was a strong focus on conceptual learning rather than the mastery of techniques or methods. This involved teachers focusing on exploring the core ideas underlying the Mathematics being taught. This excellent practice will contribute positively to students' ability to tackle *Project Maths* examination questions.
- In most lessons students completed questions from the book to consolidate their learning and, while this is necessary, care should be taken to ensure that there is a good balance between doing repetitive practice questions and working on new material. Therefore, students should be given additional opportunities to work on unfamiliar material, connected concepts from other areas of the syllabus and problems so that they learn to cope with the unexpected.
- The students achieved all the learning objectives in each lesson observed. They demonstrated very good understanding of the concepts taught and an interest in Mathematics through their confident contributions and their discussions. They were appropriately challenged. They actively engaged and participated in all of the lesson activities.

- In all lessons there was an emphasis on making Mathematics fun for students and it was evident that they were enjoying the subject. Teachers frequently provided encouragement and affirmation for students' efforts.
- Teachers assessed learning through observation and questioning throughout the lessons observed. In some lessons 'show me boards' were used to very good effect. Very high quality feedback is provided in class, on corrected written work and on the reports sent home. This allows students to identify and address areas for improvement.

SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT

- Timetable allocation and the provision of resources, which includes information and communications technology (ICT), to support teaching and learning in Mathematics are very good.
- Students are assigned to mixed-ability mathematics classes for first year; levels are set in every other year. Students are encouraged to study the subject at the highest level possible for as long as possible. This is all good practice.
- A second teacher was provided to assist students in some classes visited. While it was good that a high level of support was available, it was evident that the individual attention provided by the main teacher was sufficient to address all of the students' learning needs. Therefore, the need for this additional provision should be evaluated.
- School management actively encourages teachers to engage in continuing professional development (CPD) and facilitates attendance at subject specific and whole-school CPD events. Four of the mathematics teachers are studying for the Diploma in Mathematics for Teaching as an additional postgraduate qualification.
- As part of the school's self-evaluation process an analysis of the students' attainment compared to national norms is completed each year. This contributes positively to the evidence based decision-making that informs planning for Mathematics. It is recommended that student intake data also be included in the evidence base to add an alternative perspective. In addition, student surveys are suggested as a further source of evidence for the school in making decisions about provision for Mathematics.
- A range of valuable opportunities are provided for students to participate in extracurricular mathematics activities.

PLANNING AND PREPARATION

- The members of the mathematics department work very well as a team. In addition to the regular formal meetings that are held, they consult daily on an informal basis about teaching and learning in Mathematics. There is a strong culture of sharing ideas and expertise amongst the mathematics teachers. It is recommended that this very good practice be further developed through engagement in collaborative lesson planning and peer observation.
- Very good schemes of work for Mathematics have been developed. The best of them clearly set out learning objectives, methodologies, resources and assessment. It is recommended that the schemes be amended to include the relevant links between topics.

This is to ensure that the schemes of work better reflect the way topics are organised on the certificate examination papers.

- In keeping with very good practice the mathematics teachers reflect on their work and evaluate their practice well in order to promote ongoing improvement. To this end an action plan has been developed outlining areas for attention in Mathematics together with very clear strategies for improvement to be implemented by all teachers. The current priorities are the inclusion of assessment for learning (AfL) and literacy and numeracy strategies in lessons. Work has begun on the inclusion of additional challenge for better able students.
- The mathematics teaching team is currently developing a range of new modules for inclusion in the TY programme. These include a module on Euler, Linear Algebra, and Environmental Mathematics. This is excellent practice and is evidence of the mathematics department's openness to innovation and creativity. Ideas that might be considered for inclusion are Applied Mathematics, problem solving, computer programming, and budgeting.

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.