An Roinn Oideachais agus Scileanna

Department of Education and Skills

Subject Inspection of Mathematics
REPORT

St Mary's Academy CBS
Station Road, County Carlow
Roll number: 61120E

Date of inspection: 23 March 2015

AN ROINN OIDEACHAIS AGUS SCILEANNA | DEPARTMENT OF EDUCATION AND SKILLS

REPORT
ON
THE QUALITY OF LEARNING AND TEACHING IN MATHEMATICS

INFORMATION ON THE INSPECTION

Dates of inspection	20 & 23 March 2015
Inspection activities undertaken • Review of relevant documents • Discussion with principal and teachers • Interaction with students	• Observation of teaching and learning during seven class periods • Examination of students' work • Feedback to principal and teachers

MAIN FINDINGS

- The overall quality of teaching and learning ranged from good to very good with exemplary practices also noted.
- School management provide very good support for Mathematics.
- Teachers presented as being very motivated and enthusiastic about supporting and developing Mathematics.
- Assessment for learning (AfL) strategies were used effectively in the vast majority of lessons.
- An extensive range of extra-curricular and co-curricular mathematics opportunities are available for students.
- The coordination of Mathematics is very good and has resulted in the development of a comprehensive subject folder.

MAIN RECOMMENDATIONS

- Strategies promoting higher-order thinking skills should be utilised more in some lessons.
- The mathematics department should analysis student attainment in junior certificate examinations and use their findings to support future department planning.

INTRODUCTION

St. Mary's Academy is a voluntary, boys-only secondary school under the trusteeship of the Edmund Rice Schools Trust (ERST). The school has a current enrolment of 565 students and offers the Junior Certificate, the Leaving Certificate Vocational Programme and the established Leaving Certificate. An optional Transition Year (TY) programme is also offered to students.

TEACHING AND LEARNING

- The evaluation was conducted over a two-day period where seven one hour lessons were observed allowing for all programmes, year groups and levels to be evaluated. The quality of teaching and learning ranged from good to very good, with exemplary practices also noted.
- Teachers and their students' use of subject specific terminology during their interactions, was uniformly very good. Many students demonstrated very good capabilities in using appropriate key words during interactions with the inspector.
- In all lessons teachers explicitly stated the learning objectives for the lesson and many took time to revisit them during or at the end of the lesson. All teachers are reminded to revisit lesson objectives to ascertain what learning has taken place.
- Very good links were made between students' prior learning and current lesson content. For example, the theme of one lesson "making connections" offered excellent opportunities for students to consolidate their learning while demonstrating that Mathematics is a series of connections rather than topics learnt in isolation.
- A range of mostly effective teaching methodologies were used in lessons observed, including whole-class teaching and student-centred group work. Group work was mostly very good and challenging. There was some scope in a few lessons, where there was a need for more differentiated material, to further support individual learning.
- Many students demonstrated a positive attitude to Mathematics and the majority competently completed all tasks set for them during the lesson. In some lessons, students asked questions of their teacher to check their understanding or to clarify misconceptions.
- In lessons where excellent practice was noted questioning strategies that encouraged mathematical thinking were observed. Higher-order, probing questions were used in such lessons and opportunities to provide justifications for answers were afforded to students. However, in a few lessons there was an over reliance on helping students too much rather than using questions that would probe to check students' understanding. It is therefore recommended that strategies promoting higher-order thinking skills should be utilised more.
- Teachers are classroom based and many have reconfigured their classrooms to support group work, which is commendable as it supports Project Maths approaches. In addition to classroom displays, a print rich environment has been created and includes posters indicating distances between different locations within the school. Commendably, such displays enhance the learning environment and support a whole-school approach to numeracy development.
- Resources were effectively integrated into lessons including good use of information and communication technology. During a trigonometry lesson, screen shots were prepared in advance by the teachers highlighting key points. Equally effective practice was noted in a TY lesson, where a geometry software package was firstly taught to students and followed by them applying their learning to complete a coordinate geometry task.

- In addition to school-based assessment, teachers provided oral feedback as they circulated during the lessons. A review of students' work indicated that teachers are monitoring students' written work and there were some very good examples of formative written feedback in copybooks.

SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT

- The mathematics department is very strongly supported by school management. This year the school operates one-hour class periods. While daily contact with the subject is not feasible, the overall time allocated to Mathematics is very good and has increased.
- Concurrent timetabling of Mathematics is facilitated from second year onwards enabling students to access a level appropriate to their ability. To address a demand by fifth-year students to participate in higher level, the principal is teaching Mathematics this year.
- The mathematics department has seen many changes in personnel in recent years. Teachers presented as being motivated and enthusiastic about promoting and developing Mathematics. They have embraced change and have developed a range of electronic subject support materials which can be accessed for outside the school.
- The qualifications profile of the mathematics department is very good and all teachers have a specialist qualification in Mathematics. The rotation of the teaching of levels and programmes is facilitated and this supports capacity building. Attendance at maths specific continuing professional development is facilitated and encouraged by school management. Two members of the mathematics department are currently seconded to national programmes involving Mathematics.
- In addition, models of provision of additional support in Mathematics include one-to-one and small group withdrawal. The possibility of team teaching should be considered following in-service in this area.
- An extensive range of extra-curricular and co-curricular mathematics opportunities are available. This has resulted in success in competitions arranged by the Irish Mathematics Teachers Association including *Peter's Problem*. The practices of planning and organising peer support in the form of a Maths Clinic and the collaboration with local schools are highly commended.

PLANNING AND PREPARATION

- The voluntary position of coordinator of Mathematics has remained with one member of the department for valid reasons. However, over time the practice of rotation of the position should be established.
- Coordination of Mathematics is very effective and many very good practices and procedures have been achieved. Meetings of the department are facilitated and minutes of meetings recorded.
- Overall, subject department planning and organisation are very good. The comprehensive subject planning folder provides a general overview of organisational details. Schemes of work are written in terms of learning outcomes and are linked with various syllabus strands. This is very good practice.

- The mathematics departments presents a detailed analysis of student attainment in leaving certificate examinations and strategies that will be implemented to address areas for further development, to the board of management. This is very good practice and one that should be extended to include an analysis of attainment in junior certificate mathematics. Such a review should also support future department planning with a view to increasing participation at higher level.
- A comprehensive TY mathematics plan offers students an opportunity to study syllabus and non-syllabus material. In line with best practice, a range of assessment modes are used in the subject. Of particular note is the publication of a maths book each year by TY students. Consideration could be given to offering the programme on a modular basis. This would thereby allow teachers to teach to their strengths and possibly allow students to sample modules such as Applied Mathematics.

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

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