An Roinn Oideachais agus Scileanna

Department of Education and Skills

Subject Inspection of Mathematics
REPORT

Borris Vocational School,
Borris, County Carlow
Roll number: 70400L

Date of inspection: 28 September 2011

AN ROINN OIDEACHAIS AGUS SCILEANNA | DEPARTMENT OF EDUCATION AND SKILLS

REPORT
ON
THE QUALITY OF LEARNING AND TEACHING IN MATHEMATICS

INFORMATION ON THE INSPECTION

Date of inspection	28 September 2011
Inspection activities undertaken • Review of relevant documents • Discussion with principal and teachers • Interaction with students	• Observation of teaching and learning during five class periods • Examination of students' work • Feedback to principal and teachers

MAIN FINDINGS

- Overall the teaching and learning observed was of a very good standard with scope for further development in a few aspects of teacher questioning.
- The integration of resources in many lessons was very effective and enhanced students' engagement and learning.
- Timetabling provisions and arrangements are very good.
- Individual planning and collective planning is of a high standard and there is evidence of a united collaborative and reflective mathematics department.

MAIN RECOMMENDATIONS

- A review of questioning strategies that focuses on questioning style and techniques should be undertaken during subject department planning.
- Learning objectives should be integrated into the schemes of work with the synchronisation of topics across all levels.

INTRODUCTION

Borris Vocational School is a co-educational secondary school with a population of 503 students. The school serves a wide rural catchment area in south County Carlow. The school offers the Junior Certificate, the established Leaving Certificate and the Leaving Certificate Vocational Programme. In addition, an optional Transition Year (TY) programme is available in senior cycle. 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.

TEACHING AND LEARNING.

- In almost all lessons, teaching was of a very good standard. Methods observed included whole class teaching, group work and in one instance an investigative approach was used. In most instances, the chosen method was effective. However, on occasion the use of an alternative approach that involved active learning would have been more effective.

- In many lessons, students were productively engaged through teachers' questioning. In most instances, teachers' questioning strategies were very effective and included a good balance between lower and higher-order questions. Student participation in lessons was enhanced when teachers asked mostly directed rather than global questions. There is a need, however, to continually strive to use higher-order questioning, as it provides opportunities for students to develop higher-order thinking skills. Further areas for development of questioning technique include the provision of sufficient time for students to think as in some instances teachers provided answers too readily. In such instances, it is recommended that teachers provide prompts to students to elicit suggestions and guide them through a sequence of questioning towards the correct solution.

- The quality of learning was generally very good. There were many instances of purposeful student engagement. In most lessons, there was a good balance between teacher demonstration and student activity which allowed students to take responsibility for their own learning.

- Classroom management was characterised by very good student-teacher relations and students were co-operative and attentive. Teachers circulated to observe students' work and took time to provide assistance to individual students. In some instances, this allowed teachers to identify misconceptions and address them on whole class basis. This is good practice.

- During interactions between students and the inspector, there were many instances where students presented as being knowledgeable about the topic and used appropriate subject terminology, symbols and formulas.

- Effective use was made of a range of resources during lessons. For example, during the teaching of Geometry very effective use was made of geostrips to provoke dialogue about triangles. Mathematical sets were then used to progress the lesson and allowed students to construct triangles.

- Students are appropriately assessed through in class monitoring of progress and through class tests or school examinations which take place at regular intervals throughout the school year. Common assessments and marking schemes are used for class groups

studying Mathematics at each level during school examinations. This is good practice. Regular contact with, and reporting to parents is undertaken.

SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT

- Timetabling arrangements and the organisation of Mathematics is very good. There is very good provision of time to the subject for all year groups with additional teachers deployed to most year groups to facilitate the formation of independent levels.
- The mathematics department consists of six teachers, all of whom are subject specialists. All teachers share in, and rotate the responsibility for teaching all programmes and levels in Mathematics.
- Arrangements for the acquisition and identification of subject resources are well established. Management is commended for providing financial support that facilitates each teacher to have a range of suitable resources including information and communication technology (ICT) equipment within their teacher based classroom. In addition to teacher-developed supplementary materials, departmental resources and reference materials are retained centrally for ease of access.
- Teachers are facilitated by management to access opportunities for continuous professional development. Efforts to re-establish a local branch of the Irish Mathematics Teachers Association are to be welcomed as it will provide additional opportunities for teachers.
- The mathematics department strive to provide opportunities for their students to engage with Mathematics through other co-curricular and extracurricular activities. Students have opportunities to participate in events, such as Problem Solving for Irish Second Level Mathematicians (PRISM) and Maths Week.
- On entry to the school, students are assigned to mixed-ability groupings and classes are banded from second year onwards. Concurrent timetabling of Mathematics classes provides flexibility for students to access a level most appropriate to their needs.
- Students who find Mathematics challenging are very well supported. For example, a resource class is timetabled concurrently with Mathematics in almost all years. In addition, numeracy support is given at a time when students have an exemption from Irish or do not study a modern language.
- Management and staff analyse students' attainment which helps to inform departmental planning. Through this process, the department identified a large cohort of students who were choosing ordinary level and achieving a grade B or above. Consequently, the mathematics department has created a second higher-level class grouping at junior cycle. This is very good practice.

PLANNING AND PREPARATION

- The organisation of the mathematics department is very good. Good practices included the position of a rotating co-ordinator, regular planning meetings and the retention of minutes of meetings.
- Planning within the department is advanced and customs and practices are well established. Planning documentation and supplementary materials are placed on the schools intranet where they can be easily accessed. There is evidence of a collaborative approach in all aspects of the department's work.

- Department documents are very informative and included organisational details, minutes of meetings, schemes of work and the identification of key areas for development.
- Areas for further development in the subject plans include the establishment of learning objectives associated with each scheme of work and the synchronisation of topics across year groups and levels. In addition, the development of an action plan to progress identified key areas for further development is suggested.
- The TY plan provides opportunities for students to consolidate experiences at junior cycle and sample leaving certificate material, in addition to learning Mathematics through puzzle and other activities.
- Individual planning was of a high standard and all teachers followed the schemes of work. Supplementary materials used in lessons were available to hand and used in key stages of lessons.
- Teachers retain very good records of students' attainment, attendance and assigned homework. Homework was assigned in all lessons observed and was sufficiently challenging in terms of quantity, while reflective of material encountered during the lesson.

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

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