

**An Roinn Oideachais agus Scileanna**

**Department of Education and Skills**

**Subject Inspection of Mathematics  
REPORT**

**Coláiste Bríde,  
Enniscorthy, Co. Wexford  
Roll number: 63570W**

**Date of inspection: 2 December 2009**



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

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**SUBJECT INSPECTION REPORT**

This report has been written following a subject inspection in Coláiste Bríde. It presents the findings of an evaluation of the quality of teaching and learning in Mathematics and makes recommendations for the further development of the teaching of this subject in the school. The evaluation was conducted over two days during which the inspector visited classrooms and observed teaching and learning. The inspector interacted with students and examined students' work. Following the evaluation visit, the inspector provided oral feedback on the outcomes of the evaluation to the principal. 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.

**SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT**

Coláiste Bríde is an all-girls voluntary secondary school that participates in the Delivering Equality of Opportunity in Schools (DEIS) programme. The school offers its 783 students the opportunity to participate in the Junior Certificate (JC), Transition Year (TY), Leaving Certificate Vocational Programme (LCVP) and the established Leaving Certificate (LC) programmes. The school operates a forty class-period week with periods of forty or forty-five minute duration.

Time allocated to Mathematics in senior cycle is good. TY Mathematics has an allocation of three class periods with five classes periods allocated to Mathematics in both fifth and sixth year. The provision of four class periods to Mathematics for all JC classes is low. It is recommended that a review of the timetabling arrangements be undertaken by management with a view to increasing the time allocated to JC Mathematics. This would allow students to have daily contact with the subject while allowing new concepts to be encountered incrementally.

Apart from first and third-year class groups, concurrent timetabling takes place for all Mathematics classes in a year group. In third year, two bands are formed and concurrent timetabling is facilitated within these bands. First-year students are assigned to mixed-ability classes with some concurrent timetabling arranged. The spread of Mathematics classes provides a balance between morning and afternoon periods throughout the week. These timetabling arrangements are in line with best practice and provide opportunities for students to access a level commensurate with their ability.

The Mathematics department in Coláiste Bríde is quite large, with thirteen teachers. Teachers are generally deployed appropriately, in line with their subject specialism. However, some teachers have been appointed to teach Mathematics at a level higher than their subject specialism. Additionally, some teachers teach only one class group, and this is not good practice. School management should address these areas. Ongoing monitoring of the deployment of teachers to Mathematics classes and levels is recommended to ensure that continuity of approach and long-term planning are facilitated. JC teachers share in the responsibility for the teaching of all levels which is in line with best practice. Recently the school has put plans in place that has seen an

increase in the number of teachers sharing the teaching of higher-level at senior cycle. This practice is commendable as it ensures that the capacity within the department is maintained.

Management is commended for facilitating teachers to attend continuing professional development courses in subject-specific areas. Annual subscriptions for membership of subject associations are also paid by management. Requests for resources are made to the Principal and where feasible are provided. Many rooms have ceiling-mounted data projectors for use in the teaching and learning of Mathematics.

The commitment of teachers to promoting Mathematics is applauded. Students have opportunities to participate in Mathematics competitions arranged nationally through the Irish Mathematics Teachers' Association and are invited to compete in the Irish Mathematical Olympiad. This year Mathematics teachers organised school-based events and competitions during Maths Week Ireland. A noticeboard dedicated to displaying mathematical events and communications between teachers and students is located in the school.

Students who find Mathematics challenging are identified prior to entry and through ongoing monitoring by their teachers. A range of support models is in place for students who are identified: for example one-to-one support; and withdrawal with classes running parallel to the Mathematics classes. In addition, the school operates a unique initiative that sees TY students mentoring students in these support classes. This programme offers students the opportunity to tutor students and assist them to develop competencies in Mathematics. This programme was observed and proved to be beneficial to both students and tutor.

#### **PLANNING AND PREPARATION**

No meeting with the convenor of Mathematics was facilitated during the evaluation. However, management indicated that the voluntary role of convenor of Mathematics is generally the responsibility of one teacher of the Mathematics department. It is recommended that this position be undertaken on a rotational basis among members of the department.

No planning documentation or minutes of Mathematics department meetings were presented during the evaluation.

A review of the performance of student achievement in State Examinations indicates that students are generally achieving satisfactorily. However, participation rates at higher level should be reviewed and discussed by the teachers of Mathematics at subject department meetings. Strategies to increase participation rates at higher level, particularly at LC, are encouraged.

#### **TEACHING AND LEARNING**

During the evaluation, nine lessons were visited, allowing all levels and programmes to be observed. In general, the teaching was of a good standard, although traditional in style. Lessons were well planned with all necessary materials prepared and accessible for the lesson. Teachers presented their lessons in a confident manner. Both teachers and students used mathematical terminology, and the use of subject-specific symbols during their interactions demonstrated regular and frequent exposure to them.

Lessons were conducted in a positive atmosphere conducive to a good learning environment. Teachers have developed very good rapport with their students and students were well behaved and had their materials prepared in advance of the lesson.

Lessons frequently opened with the calling of the class roll, correction of homework and the continuation of the topic from the previous lesson. In line with best practice, many teachers took the opportunity to state the learning objectives for the lesson. This practice should be extended where appropriate as it engages students in the learning process. An appropriate pace was established in lessons which allowed for good use to be made of the available time. Teachers skilfully judged students' readiness to progress with lessons and when necessary took further time or additional examples to reinforce learning before proceeding with new material.

Traditional whole-class teaching was the dominant style of teaching observed. This method involved the teachers demonstrating a technique followed by the setting of work for students to practise. To ensure that all students' learning styles are catered for it is recommended that a range of methodologies that will complement the traditional style be used in lessons. For example, the use of active methodologies which would encourage all students to take a more active role in the learning process is encouraged. This could include discovery or investigative learning methods to allow for greater student involvement.

Teachers' questioning of students generally focused on the procedural issues or the next line in the step of a solution of a question. This type of questioning limits engagement with students as it does not allow for in-depth discussion of the topic. However, in some lessons teachers used higher-order questions to challenge students to speculate and to explain their reasoning. This is commendable practice and should be extended. When using this approach, teachers should ensure that sufficient time is given to students to consider a possible solution to a question before the teacher proceeds with the solution. It is therefore recommended that teachers apply the principles of 'assessment for learning' to their questioning strategies. These principles can be accessed on the National Council for Curriculum and Assessment website ([www.ncca.ie](http://www.ncca.ie)).

Many teachers have base classrooms and in such cases rooms had a range of commercially purchased posters and materials in addition to teacher and student developed posters. The display of such materials is good practice as it enhances the learning environment for students and allows the inclusion of these resources as a teaching tool in a lesson. The main resources used in lessons were textbooks and teacher-developed handouts. Some teachers effectively used ICT or an overhead projector during the lesson to demonstrate a technique or to correct homework. However, given the availability of resources in the school use of overhead and data projectors should be extended to allow, for example, the demonstration of accuracy in the display of diagrams and the swift correction of homework.

## **ASSESSMENT**

In addition to in-class questioning, regular assessment and monitoring of student progress takes place in Coláiste Bríde, both on an individual teacher basis and through formal school-based examinations. Common assessment papers are used for formal examinations where appropriate, and this is in line with best practice. Non-examination year groups have formal school examinations at Christmas and again prior to the summer holidays. Examination year groups sit formal Christmas and 'mock' exams in the second term.

Communication between the home and school takes many forms including school reports issued following formal school assessment, and parent-teacher meetings for each year group. Student

diaries are used for more regular contact with home and other means of communication are used where appropriate.

Homework was assigned in most lessons observed and provided students with an opportunity to practise newly acquired techniques engaged with during the lesson. Students' copies observed during the evaluation indicate that many students present their work to a high standard. However, some students should be encouraged to present their work in a more organised manner. There is evidence that teachers are monitoring students' work and many copies included written commendation and suggestions for improvement. In addition many teachers took time during the lessons to provide individual feedback to students on their work.

Management provides teachers with diaries to record student attendance and student attainment in school-based assessments. These records reveal that many students have excellent attendance. However, they also reveal that some students' attendance is sporadic. While management is keenly aware of student attendance, it is necessary that students and parents share in the responsibility to ensure attendance at school on a regular basis. This is necessary to ensure that students avail of all opportunities to progress with their studies.

#### **SUMMARY OF MAIN FINDINGS AND RECOMMENDATIONS**

The following are the main strengths identified in the evaluation:

- There is very good whole-school support for Mathematics in Coláiste Bride. Teachers are encouraged and facilitated to attend continuing professional development; there is a good range of resources available for the teaching of the subject.
- Teachers were well prepared for lessons.
- Teachers and students have developed a good rapport and lessons were conducted in a warm atmosphere.
- The support offered to students for whom Mathematics is challenging is very good especially with the TY students providing tutoring to students.

As a means of building on these strengths and to address areas for development, the following key recommendations are made:

- The range of methodologies used by teachers should be expanded to cater for the diverse range of learning styles of all students.
- All the available resources should be used in lessons as an aid in the teaching and learning of the subject.
- Questioning strategies that will encourage greater student engagement in lessons should be used. In addition, teachers should refrain from providing the solution to an answer without giving students sufficient time for deliberation.
- The Mathematics department should take time during planning meetings to develop strategies to raise the uptake of higher level, particularly at senior cycle.

Post-evaluation meetings were held with the head of the Mathematics department and with the principal at the conclusion of the evaluation when the draft findings and recommendations of the evaluation were presented and discussed.

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