

An Roinn Oideachais agus Scileanna
Department of Education and Skills

Subject Inspection in Mathematics

REPORT

Ainm na scoile / School name	Christian Brothers Secondary School
Seoladh na scoile / School address	Mitchelstown Co Cork
Uimhir rolla / Roll number	62420V

Date of Inspection: 25-01-2017



WHAT IS A SUBJECT INSPECTION?

Subject Inspections report on the quality of work in individual curriculum areas within a school. They affirm good practice and make recommendations, where appropriate, to aid the further development of the subject in the school.

HOW TO READ THIS REPORT

During this inspection, the inspector evaluated learning and teaching in Mathematics under the following headings:

1. Learning, teaching and assessment
2. Subject provision and whole-school support
3. Planning and preparation

Inspectors describe the quality of each of these areas using the Inspectorate's quality continuum which is shown on the final page of this report. The quality continuum provides examples of the language used by inspectors when evaluating and describing the quality of the school's provision in each area.

Subject Inspection

INSPECTION ACTIVITIES DURING THIS INSPECTION

Dates of inspection	24-01-2017 and 25-01-2017
Inspection activities undertaken <ul style="list-style-type: none">• Review of relevant documents• Discussion with principal and key staff• Interaction with students• Discussion with special educational needs (SEN) co-ordinator	<ul style="list-style-type: none">• Observation of teaching and learning during five class periods• Examination of students' work• Feedback to principal, deputy principal and subject co-ordinator.

SCHOOL CONTEXT

Christian Brothers Secondary School, Mitchelstown, operates under the trusteeship of the Edmund Rice Schools Trust (ERST). The school offers the established Junior Certificate. At senior cycle, an optional Transition Year (TY) is available to be followed by the established Leaving Certificate, the Leaving Certificate Vocational Programme (LCVP) or the Leaving Certificate Applied (LCA). The school has a current enrolment of 312 boys.

SUMMARY OF MAIN FINDINGS AND RECOMMENDATIONS:

FINDINGS

- The quality of teaching and learning ranged from very good to satisfactory.
- The quality of teacher explanations was very high and mathematically rigorous in all lessons.
- In some lessons, students needed to be given more opportunities to be responsible for their own learning and to develop their mathematical reasoning skills.
- Certificate results are analysed and compared to national norms; this is good practice.

RECOMMENDATIONS

- It is recommended that the schemes of work be developed in line with the learning outcomes of the Mathematics syllabus.
- The department should set long-term goals to help establish a culture of collaborative learning, where students are working for a significant proportion of the lesson and are afforded regular opportunities to improve their mathematical reasoning and critical thinking skills.

DETAILED FINDINGS AND RECOMMENDATIONS

1. TEACHING AND LEARNING

- The quality of teaching and learning ranged from very good to satisfactory. Almost all lessons started with a valuable review of homework. It was evident that students were very familiar with good practices in relation to the correction of homework, with teachers using this time to assess areas of weakness that were then explored at whole-class level. This is very good practice. To enhance this practice further, students could be taught the underlying skills related to peer assessment.
- In some very effective lessons, learning intentions were shared with students in the form of aims, written as skills. This approach gave these lessons a clear structure and direction. It was observed that in the course of these lessons, students were active for a significant portion of the time available, and demonstrated very good levels of engagement. This practice of providing learning intentions to guide and structure a lesson, while simultaneously giving students a means of assessing their progress, should be developed across the department.
- Where effective collaborative learning was observed, students were working independently for a large portion of the lesson and were afforded regular opportunities to improve their mathematical reasoning and critical thinking skills. There was also a very good level of pace and challenge in these lessons. It is recommended that the department consider how the use of pair work, group work and other strategies can help to establish a culture of collaborative learning amongst the students and provide them with the necessary opportunities for critical thinking.
- The quality of teacher explanation was very high and mathematically rigorous in all lessons. In some instances, there was a need to find a better balance between teacher-student input, as students were observed to be very passive when this balance was not in place. To address this passivity, thought should be given to the use of approaches that allow students to problem-solve to some extent, before teacher-led explanation. This is particularly important in lessons where students are revising topics that they have previously studied.
- Highly effective questioning, in most lessons, elicited a good standard of response from students. In the most effective instances, student contributions were used to further the understanding of the entire group. Teachers made good use of the multiple approaches to problem-solving that were suggested by students.
- At all times, the classroom atmosphere was purposeful and supportive, with good assessment of learning practices seen in the majority of lessons. Teachers demonstrated keen awareness of individual students' needs. The work presented in students' copies was of a high quality, and it is evident that much time is spent by teachers highlighting the value of laying out work in a clear and consistent manner. There was very good incorporation of key terms and subject specific terminology into almost all lessons.
- The facilities for information and communications technology (ICT) are extensive. In some lessons opportunities were missed to enhance learning and increase lesson pace with the use of ICT. The use of visualisers could be explored and any difficulties with ICT infrastructure should be addressed as soon as possible.

2. SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT

- Overall, subject provision and whole school support is good. There is good provision in place for all students to access all levels through concurrent timetabling. Students are encouraged

to study at higher level for as long possible, with a flexible system of consultation between teacher, student and parents employed when a final level must be chosen. This consultative approach is good practice.

- Provision for students with special educational needs (SEN) in mathematics is well organised. The main method of support is through small group tutorials which are provided by the teachers of Mathematics. There is evidence of thorough planning for these tutorials, to ensure that they address the needs of the students and are consistent with the mainstream classroom experience.
- Teachers have been facilitated to attend continuing professional development (CPD) by senior management. The outcomes of any CPD should be shared with the department, with new strategies incorporated into classroom practice in an effort to find those most effective for the students. There is much expertise within the department, in the area of experimenting with strategies and developing student-centred resources. This expertise could be shared throughout the mathematics department.
- The significant commitment of the members of the mathematics department to supporting students in their learning outside of regular class times is acknowledged. It is understood that this is done in an effort to afford students the greatest time available to revise and practice, well in advance of certificate exams. It should be a long-term goal of the department to reduce the number of these periods as much as possible, and incorporate what is done in these sessions into the timetabled lessons.
- Some progress has been made in the area of developing common assessments across the department and this should be extended, where possible. In addition to classroom assessments, all first-year students take a common numeracy test. This is good practice, as the availability of this type of data will allow the department to make direct comparison of trends in student progress from year to year.

3. PLANNING AND PREPARATION

- Overall, planning and preparation is good and the subject department plan is comprehensive. Currently, the majority of the schemes of work are topic-led and relate to progression through the textbook. The first and second year schemes are more holistic, and link clearly to the learning outcomes of the syllabus. This more holistic approach should be extended, in the near future, to all schemes of work. The TY scheme should incorporate some aspects of Mathematics that are not directly related to the Junior Certificate or Leaving Certificate syllabuses and, in line with best practice, should incorporate elements of assessment that are project, or presentation based.
- Subject department minutes are available and relate mostly to the administrative and organisational needs of the department, as overseen by the co-ordinator and in consultation with members of the department. Though there have been some changes to staffing recently, it is envisioned that the role of subject co-ordinator will rotate between the main teachers of Mathematics on a yearly basis; this is good practice. While it was evident that there is much enthusiastic discussion of Mathematics taking place informally, the department should utilise their meetings as a space to formalise these discussions and share teaching approaches.
- It is good practice that the department identifies trends in certificate examinations and compares them to national norms. To enhance this further, the department should use this analysis to inform long-term goals related to the development of the subject.

The draft findings and recommendations arising out of this evaluation were discussed with the principal, deputy principal and subject coordinator 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, and the response of the board will be found in the appendix of this report.

THE INSPECTORATE'S QUALITY CONTINUUM

Inspectors describe the quality of provision in the school using the Inspectorate's quality continuum which is shown below. The quality continuum provides examples of the language used by inspectors when evaluating and describing the quality the school's provision of each area.

Level	Description	Example of descriptive terms
Very Good	Very good applies where the quality of the areas evaluated is of a very high standard. The very few areas for improvement that exist do not significantly impact on the overall quality of provision. For some schools in this category the quality of what is evaluated is outstanding and provides an example for other schools of exceptionally high standards of provision.	Very good; of a very high quality; very effective practice; highly commendable; very successful; few areas for improvement; notable; of a very high standard. Excellent; outstanding; exceptionally high standard, with very significant strengths; exemplary
Good	Good applies where the strengths in the areas evaluated clearly outweigh the areas in need of improvement. The areas requiring improvement impact on the quality of pupils' learning. The school needs to build on its strengths and take action to address the areas identified as requiring improvement in order to achieve a very good standard.	Good; good quality; valuable; effective practice; competent; useful; commendable; good standard; some areas for improvement
Satisfactory	Satisfactory applies where the quality of provision is adequate. The strengths in what is being evaluated just outweigh the shortcomings. While the shortcomings do not have a significant negative impact they constrain the quality of the learning experiences and should be addressed in order to achieve a better standard.	Satisfactory; adequate; appropriate provision although some possibilities for improvement exist; acceptable level of quality; improvement needed in some areas
Fair	Fair applies where, although there are some strengths in the areas evaluated, deficiencies or shortcomings that outweigh those strengths also exist. The school will have to address certain deficiencies without delay in order to ensure that provision is satisfactory or better.	Fair; evident weaknesses that are impacting on pupils' learning; less than satisfactory; experiencing difficulty; must improve in specified areas; action required to improve
Weak	Weak applies where there are serious deficiencies in the areas evaluated. Immediate and coordinated whole-school action is required to address the areas of concern. In some cases, the intervention of other agencies may be required to support improvements.	Weak; unsatisfactory; insufficient; ineffective; poor; requiring significant change, development or improvement; experiencing significant difficulties;

Appendix

SCHOOL RESPONSE TO THE REPORT

Submitted by the Board of Management

Area 1 Observations on the content of the inspection report

The Board of Management welcomes this report and is appreciative of the work of the inspectorate in compiling it.

The affirmative comments in the report regarding Teaching and Learning including the very high quality of teacher explanations, the mathematically rigorous lessons, the highly effective questioning, the purposeful and supportive classroom atmosphere, the high quality of student work and the extensive I.T. facilities are most welcome. The Board is also pleased to note the acknowledgment of the significant commitment of the teachers to supporting students in their learning and of the expertise, good practice and organisation within the subject department.

The Board is committed to supporting the teachers in following up on the recommendations made by the inspectorate with a view to building on the current good practice.

Area 2 Follow-up actions planned or undertaken since the completion of the inspection activity to implement the findings and recommendations of the inspection.

As per the Inspector's comments, the first and second year schemes link clearly to the learning outcomes of the syllabus and are holistic in approach. The maths department is committed going forward to updating all schemes of work such that they are of the standard of those for first year and second year, beginning with the third-year schemes.

The Transition year programme will be reviewed by the end of this school year, and improvements including non-exam related topics and project based work will be included. Some of this review work has begun already.

The Board acknowledges the recommendation on establishing a practice of collaborative learning. Six teachers on the staff are currently involved in the instructional leadership course, while one of the Maths teachers is involved in the Maths Counts seminars. The Board is committed to encouraging the practice of the active methodologies and opportunities for critical thinking espoused by these courses throughout the maths department. Staff involved have committed to sharing with their colleagues the good practices learned.