An Roinn Oideachais agus Scileanna

Department of Education and Skills

Subject Inspection of Mathematics
REPORT

Wilson's Hospital
Multyfarnham, County Westmeath
Roll number: 63300Q

Date of inspection: 9 March 2016

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	8 and 9 March 2016
Inspection activities undertaken • Review of relevant documents • Discussion with principal and teachers • Interaction with students	• Observation of teaching and learning during eight class periods • Examination of students' work • Discussion with the learning-support co-ordinator • Feedback to principal and teachers

MAIN FINDINGS

- The quality of teaching in most lessons was good or better, there was also evidence of poor and fair performance.
- In lessons that were good or better a range of teaching methods was in evidence.
- In those lessons requiring improvement, greater focus should have been placed on the depth of treatment of the lesson material and teaching for understanding.
- The majority of lessons would be enhanced if greater emphasis was placed on pair and group work and other student-centred activities.
- Teacher questioning was seen to good effect in most lessons but there was need for an enhanced focus on higher-order questioning.
- The qualifications profile of the mathematics department has recently undergone significant improvement.

MAIN RECOMMENDATIONS

- Strategies to challenge the more able students in mathematics lessons should be designed in collaboration with the school's learning-support co-ordinator.
- Greater emphasis should be placed on providing written formative feedback on the students' mathematics copybooks.
- A range of collaborative initiatives, including peer visits to lessons should be implemented to ensure uniformly high-quality of learning in Mathematics across the school.
- The analysis of the mathematics competency test should have greater influence on the content and delivery schedule of the first year mathematics programme.

INTRODUCTION

Wilson's Hospital School is a co-educational secondary school in rural Co. Westmeath. It provides a good range of subjects and programmes including the Leaving Certificate Vocational Programme and a compulsory Transition Year (TY). At the time of the inspection the school had an enrolment of 411, over half of whom were boarders.

TEACHING AND LEARNING

- The quality of teaching varied from poor, through fair, to excellent. The majority of lessons featured teaching that was good or better. The best lessons were characterised by very good teacher content knowledge and the inclusion of a range of strategies designed to enhance student understanding of the material being covered. High-quality student engagement with the lessons' learning intentions was achieved through the use of rich, student-centred, tasks that required the students to collaborate, hypothesise and draw conclusions.
- Where the teaching was good or better, a range of teaching methods was utilised, including pair and group work, team teaching and effective integration of resources. However, the majority of the lessons, would have benefited from a greater focus on challenging the more able students and it is recommended that the mathematics teachers collaborate with the learning-support co-ordinator to design initiatives to address this.
- In one lesson there was significant scope for improvement. Here, lesson planning failed to take account of the mathematical principles underpinning the lesson content. Consequently, the lesson material was treated in a superficial manner and there was confusion about how the mathematics being used to answer questions in class actually worked. This resulted in student learning that was shallow, based on false premises and a teaching approach that failed to provide the students with the insights necessary to tackle more challenging and intricate problems.
- In two lessons, a very traditional approach to lesson delivery was in evidence. In these lessons there was an overreliance on the use of the textbook in framing the learning outcomes. In both lessons, too great an emphasis was placed on the minutiae of the algebra with which the students engaged at the expense of developing student understanding of key concepts.
- The majority of lessons would also benefit from a greater emphasis on group and pair work mediated through the use of tasks with sufficient depth to engage all of the students and provide them with an appropriate degree of challenge. This approach will help prompt discussion, discovery and develop an appreciation that a range of approaches can be brought to bear when solving problems.
- The quality of teacher questioning was good in most lessons. Where it was best it featured a good mix of global and directed questions and, most importantly, higher-order questions. These questions encourage students to think deeply, propose solutions to problems and defend their reasoning and should be a standard feature of all mathematics lessons.
- Very good homework and assessment policies are in place. Homework is regularly assigned and corrected. However, practices in relation to teachers providing formative

written feedback in the students' copybooks needs to be greatly enhanced. Future planning in Mathematics should focus on addressing this anomaly.

- The quality of student learning varied in line with the quality of teaching, being good or better in most lessons. In order to ensure high-quality learning in Mathematics for all students, it is recommended that future subject department planning focus primarily on teaching for understanding and student learning. Collaborative in-school initiatives including peer visits to lessons, discussions on teaching methods leading to enhanced outcomes during planning meetings and the wider utilisation of team teaching should all be considered.

SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT

- Timetabling provision for Mathematics, both in terms of the time available and the scheduling of lessons is very good.
- The mathematics department is very well resourced. All classrooms are equipped with interactive whiteboards and the mathematics teachers can avail of the schools computer room if the need arises. Arrangements for purchasing and storing resources are also very good and a range of materials designed to facilitate active teaching and learning are available. These effective integration of resources was evident in many of the lessons visited during the evaluation.
- Senior management and the mathematics teachers deserve great credit for the manner in which the capacity of the mathematics department has improved in recent times. Five of the teachers have availed of opportunities to gain postgraduate qualifications in Mathematics in their own time.
- The mathematical abilities of students entering first year are established using a number of assessment vehicles including a mathematics competency test. The inclusion of this test is very welcome but the analysis of outcomes should place more emphasis on identifying those areas of the syllabus where the students require focussed inputs as well as areas of particular strength. This, in turn, should determine the content and delivery schedule of the common first-year mathematics programme and the focus of ongoing assessment throughout the year.

PLANNING AND PREPARATION

- There are good structures in place to support subject department planning in Mathematics. The department members meet regularly and the operation of the department's is greatly assisted by the contribution of a very able and dedicated co-ordinator.
- A comprehensive subject department plan for Mathematics is in place and provides a robust framework to support ongoing planning. The schemes of work contained in the plan should be reviewed to include effective teaching methods and references to appropriate resources.
- The work of the department in analysing student performance in the certificate examinations and reflecting on the implications of the outcomes is admirable. Arising from the analysis, for example, enhanced uptake of higher-level Mathematics in the Junior Certificate has been identified as an area for improvement as part of the school's numeracy plan.

- The mathematics plan for TY is very good. The content is appropriate and the schemes of work contain a number of innovative features. To enhance the mathematics provision in TY it is suggested that the plan be amended to include project work, mediated through the use of dynamic mathematics software. The projects selected should engage the students in research and problem-solving.

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 accepts the report as the final inspection report available for publication and wishes to respond formally to the report. The Board agrees that the response submitted will be included as an appendix to the published report. The board's response is submitted below.

Published June 2016

Appendix

SCHOOL RESPONSE TO THE REPORT

Submitted by the Board of Management

Part A: Observations on the content of the inspection report

The school Management Board is satisfied that the inspection identified that very good practices have been established in a number of areas by the mathematics department. It acknowledges that the qualifications profile of the mathematics department has recently undergone significant improvement.

While we acknowledge the observations of the inspector during the subject inspection that the quality of teaching and learning was noted to be varied, the school's experience from other inspections and feedback is that that the quality of teaching is at a higher level. The school focus on improving teaching and learning is a continuous process.

Part B: Follow-up actions planned or undertaken since the completion of the inspection activity to implement the findings and recommendations of the inspection

Since the visit of the Inspectorate, the mathematics department attended an in-school in-service which targeted the area of problem solving.

The mathematics department plan for 2016/2017 will focus on rewriting some elements of the Transition Year plan to include an appropriate problem solving geometry project, incorporating the use of GeoGebra.

The Board and the mathematics department acknowledge that the quality of teaching varied, and that the majority of lessons featured from good to better. The mathematics department has since introduced peer mentoring to keep raising the standard in keeping within the school focus on improving teaching and learning.

The school Management Board welcomes the very positive outcomes for the school in relation to subject provision.

The School Management Board wishes to thank the Inspector for his positive engagement with staff.