

An Roinn Oideachais agus Scileanna

Department of Education and Skills

**Subject Inspection of Science and Biology
REPORT**

**Meanscoil Iognáid Rís
Drimnagh Castle CBS,
Longmile Road, Dublin 12
Roll number: 60480G**

Date of inspection: 22 November 2012



**A N R O I N N | D E P A R T M E N T O F
O I D E A C H A I S | E D U C A T I O N
A G U S S C I L E A N N A | A N D S K I L L S**

REPORT ON THE QUALITY OF LEARNING AND TEACHING IN SCIENCE AND BIOLOGY

INFORMATION ON THE INSPECTION

Dates of inspection	21 and 22 November 2012
Inspection activities undertaken <ul style="list-style-type: none">• Review of relevant documents• Discussion with principal and teachers• Interaction with students	<ul style="list-style-type: none">• Observation of teaching and learning during eleven class periods• Examination of students' work• Feedback to principal and teachers

MAIN FINDINGS

- The teaching and learning in most of the lessons observed was of a good quality.
- Students demonstrated impressive attentiveness during all lessons, applying themselves excellently to the tasks presented.
- Teachers used a range of good quality student-centred teaching methodologies, but in Junior Certificate Science, the effectiveness of the investigative approach varied.
- The very good quality laboratories and ICT facilities enhanced the learning achieved.
- The use of subject department planning time for the purpose of improving teaching and learning is progressing well.

MAIN RECOMMENDATIONS

- In progressing student practical work in Junior Certificate Science, teachers should place greater emphasis on implementing the investigative approach and on developing students' skills and confidence in planning open-ended investigations.
 - To continue improving teaching and learning, all teachers should further promote independent learning in senior cycle.
 - The science department and senior management should prioritise the need to raise attainment in the subjects and a range of strategies should be introduced to support this.
 - The basis for class formation should be continually examined by senior management to ensure that it is leading to the best outcomes for students.
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INTRODUCTION

Meanscoil Iognáid Rís is an all-boys voluntary secondary school with a current enrolment of 671. Transition Year (TY) is optional in the school. It is known locally as Drimnagh Castle CBS.

TEACHING AND LEARNING

- Eight lessons were observed, involving year groups and all teachers of the subjects. The quality of teaching and learning in the lessons observed ranged from fair to very good, with most lessons of a good quality. In some lessons visited, scope for development was identified and these were constructively addressed.
- Very good classroom management was evident throughout the inspection. Interactions were respectful and students and teachers demonstrated good levels of motivation. Through clarity of instruction, positive affirmation, good lesson pace and task sequencing, teachers generated a good environment for learning.
- Students responded by demonstrating very good attentiveness in all lessons and applied themselves productively to learning both individually and co-operatively, adapting successfully to the mode of instruction and to all tasks presented.
- Teaching was enhanced by the use of a range of supplementary resources including good imagery, using the ICT facilities. Instruction was also supported by teacher questioning to elicit student understanding and build on existing knowledge. There was a good balance between teacher and student voice and some good discussions developed. In most lessons, students demonstrated their learning eagerly.
- Students were given opportunities to work independently, in pairs and as a whole class. In some lessons which did not have a practical component, very good practice was noted when scientific enquiry was built into the tasks and lesson dialogue. Lesson delivery in TY was innovative, challenging and highly engaging for students.
- In their practical laboratory work, students demonstrated very good skills of observation, inquiry, working collaboratively and following procedure. Overall, however, it was evident that opportunities for students to actively engage in planning and designing open-ended investigations were underdeveloped. In some lessons, students would have benefited from being involved in deciding the extent of data to be collected and the techniques, equipment and materials to be used.
- In one science lesson, practical work was conducted through a teacher demonstration and in another by an experiment. While these were well delivered and clearly understood by students, the learning that took place in these lessons was of a confirmatory nature rather than investigative. This merits further consideration, so that whenever possible, student practical work in Science would not be prescribed in procedure or outcome. It is recommended that, from first year onward, teachers progressively build students' competence in the skills of the scientific method with a view to enhancing outcomes in coursework B in third year.
- Independent learning was successfully promoted in lessons when students were asked to summarise, and in some instances through collaborative note building. In these instances, the board was used well as the lesson progressed and some teachers used well-designed worksheets to support the work. However, in a lesson at senior cycle, the level of independent thinking was too low due to transcription of notes and a prescriptive

laboratory-report template. The development of students' independent thinking skills merits consideration at subject department level and when planning lessons.

- In the lessons observed, assessment strategies were very well integrated into the teaching and learning processes. Students were given good opportunities to build capacity in the subjects through tests, quizzes, homework and work from past papers.
- In all lessons, students were supported in their literacy development through the use of ongoing and integrated strategies.
- Students' written work was completed to a good standard, often with very good attention to detail and neat presentation. In some class groups, the quality of formative feedback provided by teachers on students' written work was exemplary. Consideration should be given to the extended use of formative feedback with a view to improving attainment in examinations.
- The school should prioritise the need to raise student attainment in the subjects and a range of strategies should be introduced to support this work. The system of tracking the progress of individual students that is currently in use by the deputy principal, would provide a useful instrument in collectively approaching this issue.

SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT

- School facilities fully support teaching and learning in the subjects. The four well-resourced and modernised laboratories provide good access and allow a practical experience of the subjects. The school has very good ICT facilities and broadband internet throughout.
- Whole-school support for literacy has led to productive developments. Liaison with the resource department and the implementation of new initiatives has significant capacity in supporting students to meet their full potential. The new keyword journal provides some good tools for use in classrooms including those that promote learner independence.
- Science is a core subject for junior cycle and for those following the TY programme. Three senior science subjects are provided as options in Leaving Certificate. The uptake of Biology is very high and the uptake of Physics and Chemistry is also good.
- Timetabling for the subjects is very good as four periods are provided in junior cycle and TY and five periods in senior cycle. The allocations include one double period per week.
- While students start in mixed-ability classes for Science, they are banded for ability after the first-year Christmas tests. Banding is also used at times with some senior biology groups. From a whole school perspective, class formation should be considered as a possible factor in influencing attainment. School management should explore current research on this area and consider the benefits of mixed ability for its own student cohort.

PLANNING AND PREPARATION

- Structures have been established to facilitate collaborative subject department planning. Science teachers work cohesively as a team, demonstrating reflective practice. Minutes of science department meetings indicate very good organisation and a proactive approach to developing teaching and learning in the subjects.

- Collectively, consideration has been given to good practice in assessment, homework, teaching methodologies and procedures for identifying students experiencing difficulties. These standards are described in the subject plans.
- To continue to improve teaching and learning, consideration should be given at planning meetings to evaluating the pro-forma laboratory notebooks currently in use and ways of promoting independent report writing skills. In addition, giving further consideration to marking student practical work could prove beneficial, and for Science, would mirror the State examination.
- To build on the good subject plans for Science and Biology, it is suggested that teachers would include a list of key learning outcomes to be achieved by students in each year.
- The TY programme for Science is innovative and interesting, drawing excellently from well-chosen cross-curricular themes.

The draft findings and recommendations arising out of this evaluation were discussed with the principal and subject teachers 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; a response was not received from the board.

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