

**An Roinn Oideachais agus Scileanna**

**Department of Education and Skills**

**Subject Inspection of Science and Physics  
REPORT**

**Loreto High School Beaufort  
Grange Road, Rathfarnham, Dublin 14  
Roll number: 60340N**

**Date of inspection: 7 May 2015**



**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 PHYSICS**

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**INFORMATION ON THE INSPECTION**

<b>Date(s) of inspection</b>	6 and 7 May 2015
<b>Inspection activities undertaken</b> <ul style="list-style-type: none"><li>• Review of relevant documents</li><li>• Discussion with principal and teachers</li><li>• Interaction with students</li></ul>	<ul style="list-style-type: none"><li>• Observation of teaching and learning during five class periods</li><li>• Examination of students' work</li><li>• Feedback to principal, deputy principal and teachers</li></ul>

**MAIN FINDINGS**

- There was a high level of teacher preparation for all lessons.
- Active and investigative revision and learning strategies were very well planned and delivered though this requires improvement in a minority of lessons.
- The atmosphere for learning was very good in all lessons and teacher expertise and commitment combined with student effort and motivation helped ensure that the quality of learning was very high overall.
- Teaching methods, including the use of the board and information and communication technology (ICT) were effective in the reinforcement of learning and in supporting scientific literacy.
- Effective and carefully planned differentiation strategies ensured that students successfully completed lesson tasks while being supported by the teacher and fellow students.
- Formative assessment strategies including the expert use of formative written feedback for students had a very positive impact on student learning.

**MAIN RECOMMENDATIONS**

- In some lessons there should be more appropriate balance between teacher instruction and student activity, achieved through a more investigative approach to learning.
  - Science and physics plans should be developed to include short, medium and long-term targets for the development of these subjects.
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## **INTRODUCTION**

Loreto High School Beaufort serves an urban catchment area and has a current enrolment of 633 girls. The school offers a range of programmes including the Leaving Certificate Vocational Programme (LCVP) and a compulsory Transition Year (TY) programme. In addition to Science at junior cycle and science modules in TY, the school offers a wide range of science subjects for Leaving Certificate.

## **TEACHING AND LEARNING**

- There was a high level of teacher advance preparation. Lessons were well structured and learning objectives were shared with students. Many lessons were appropriately summarised which consolidated student learning. There was very good continuity with prior learning.
- Teachers demonstrated a high level of subject expertise and delivered lessons with insight, energy and enthusiasm at an appropriate pace. Students experienced positive challenges and were strongly affirmed by teachers when tasks or assignments were completed successfully.
- Active and investigative revision and learning strategies were very well planned and delivered. In some lessons there should be more appropriate balance between teacher instruction and student activity, achieved through a more investigative approach to student learning.
- Teaching methods were quite varied in each lesson. Effective teacher demonstrations, pair work and group work were all positive features of lessons. In one double lesson, students successfully completed a wide range of very useful activities and virtual investigations. However, the possibility of re-sequencing the lesson so that students could carry out some of their investigations outside the classroom should be considered.
- The atmosphere for learning was very good in all lessons and teacher expertise and commitment combined with student effort and motivation helped ensure that the quality of learning was very high overall.
- Teaching methods, including the use of the board and ICT were effective in the reinforcement of learning, in depicting real-life applications of Science and in supporting scientific literacy. In one lesson, tablet computers were used innovatively and creatively to support and enhance the student learning experience. Some pre-prepared slides in one lesson contained a lot of unnecessary text together with photographs. This should be reviewed. Teachers successfully summarised lesson themes on the board and using ICT. This practice should be extended.
- Effective and carefully planned differentiation strategies ensured that students successfully completed lesson tasks while being supported by the teacher and fellow students. Teachers used differentiation appropriately in most lessons and gave students individual support as needed.
- Students were encouraged to think clearly. They developed key skills and were motivated and engaged by classroom activities.
- Formative assessment strategies including the expert use of formative written feedback for students had a very positive impact on student learning. This positive strategy should be further extended. There was effective use of appropriate and challenging questioning in all lessons observed.
- Students responded confidently to questions on their work. The further use of directed questions would support enhanced participation of all students. In some cases, students should be afforded the time and opportunity to make the linkage between Science and the real world for themselves.

- Homework was assigned and corrected. The quality of students' written work was very good. In some cases, the setting of an advance research task for students would have supported thematic and lively classroom discussion.
- State examination results are analysed and academic student achievement is evaluated and monitored. This is very good practice. The uptake of higher level and the academic achievement of students are very positive.

#### **SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT**

- Science is a core subject for junior cycle. Physics, Chemistry and Biology are offered at senior cycle and science modules form a core part of the compulsory TY programme. The level of support provided to students in making an informed choice of subjects for Leaving Certificate is very good.
- Time allocation to the range of science subjects is appropriate.
- The school's four laboratories and preparation areas are well organised. Teachers have created a very effective learning environment whereby students' project work is displayed and equipment is appropriately stored. In addition, the board of management has approved the refurbishment of the three older science laboratories in the current year.
- Appropriate ICT resources are available in the science laboratories and teachers are supported with good systems to store and share resources.
- The profile of Science is promoted in many ways including involvement in Science Week activities, cross-curricular collaboration and participation in the BT Young Scientist competition. The commitment of teachers and the successes of students are very praiseworthy.
- Relevant continuing professional development (CPD) courses are supported by senior management for all science teachers. Teachers have participated in various workshops and courses to advance their skills and have shown a willingness to remain upskilled in their specialist subject.
- Students can access science periodicals, journals and literature in the school library. The science department plays an active role in promoting scientific literacy and numeracy.
- The school has made very good overall progress in the implementation of recommendations made in a previous subject inspection report in Science and Physics. Chemical storage practice still requires improvement.

#### **PLANNING AND PREPARATION**

- The overall quality of individual and collective planning is very good. Well-documented collaborative plans and schemes of work are available for Science, TY science modules and Physics. The planning documentation places appropriate focus on advancing literacy and numeracy, on trends in state examination results and on modes of assessment.
- When these plans are reviewed, identified areas for development should include short, medium and long-term targets for subject development. Schemes of work are well developed overall. However, on review, consideration should be given to including learning objectives and to linking resources, assessment strategies and methodologies to each section of the course.
- The focus of TY planning is very good. There is an appropriate emphasis on investigative practical activities, project work and on applications of Science. Future plans should place skills development at the core of TY planning. The Transition Unit template could be utilised for this purpose.

- Science department planning meetings are convened regularly and minutes reveal the wide range of relevant topics discussed. Co-ordination of Science in the school is carried out effectively and is currently attached to a post of responsibility. It is suggested that this role be undertaken on a voluntary rotating capacity in an effort to further develop leadership roles among staff.

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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 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.