

An Roinn Oideachais agus Scileanna

Department of Education and Skills

**Subject Inspection of Science and Physics
REPORT**

**St Patrick's Cathedral Grammar School
St Patrick's Close, Dublin 8
Roll number: 60660I**

Date of inspection: 22 October 2013



**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

INFORMATION ON THE INSPECTION

Date of inspection	22 October 2013
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 three class periods• Examination of students' work• Feedback to principal, deputy principal and teachers

MAIN FINDINGS

- Lessons were well structured, learning objectives were shared with students in the majority of lessons and there was very good continuity with prior learning.
- Teacher commitment combined with student effort and motivation helped ensure that the quality of learning was high though a minority of lessons require further development to improve student learning.
- Teaching methods, including the use of information and communication technology (ICT) were effective in the consolidation of learning and in supporting the school's literacy and numeracy strategies.
- Well-formulated plans and schemes of work are prepared for Science and Physics, however, some further development of these plans is necessary.
- Formative assessment and enhanced reporting and monitoring have a positive impact on student learning although some aspects of assessment require further development.

MAIN RECOMMENDATIONS

- Some lessons require re-balancing in favour of more student involvement and activity.
- Assessment for learning (AfL) strategies should be developed to include the increased use of formative written feedback to students.
- Science and physics plans should be developed to include short, medium and long-term targets for the development of these subjects and the structure of the TY science plan should take further cognisance of Department guidelines.

INTRODUCTION

St Patrick's Cathedral Grammar School caters for both boys and girls, serves an urban catchment area and has a current enrolment of 122 students. In addition to the Junior and Leaving Certificate, the school offers a compulsory Transition Year (TY) programme.

TEACHING AND LEARNING

- There was very good continuity with prior learning in lessons observed.
- Lessons were well structured and learning objectives were shared with students at the outset of the majority of lessons. This good practice should be extended. Many lessons were appropriately summarised which beneficially consolidated student learning.
- There was effective use of appropriate and challenging questioning in all lessons observed. Students responded confidently to questions on their work. Very good questioning strategies supported students in their understanding of key concepts and ideas.
- The positive classroom atmosphere and rapport created a supportive learning environment. Overall, very good efforts were made to get students involved in lessons. Classroom activities were well integrated into most lessons. Further strategies to support and include students of all abilities in classroom activities should be planned and delivered. This is particularly important in mixed-ability settings. The setting of an advance student research task on a new lesson theme will also support enhanced student contribution to lessons.
- Lessons were particularly effective when teachers circulated the classroom checking students' work while providing appropriate developmental feedback to students.
- Affirmation of student effort was a positive feature of many lessons. Teachers used differentiation appropriately in most lessons and gave students individual support as needed.
- Teachers explained key concepts clearly. The use of varied methodologies including the use of project work, games and references to the applications and to the history of Science and Physics were particularly effective. Teachers should avail of opportunities to consolidate learning through the further use of group and pair work in lessons and by encouraging students to maximise the use of their keyword copybooks.
- Students were encouraged to think clearly, they developed key skills and were motivated, engaged and appropriately challenged by classroom activities.
- Teaching methods, including the use of the board and ICT, were effective in the consolidation of learning and in supporting the school's literacy and numeracy strategies. The further use of appropriate animations and applets to support learning is recommended especially as an aid to students' ability to visualise new concepts.
- Formative assessment had a beneficial impact on student learning, particularly through positive comments and annotation of students' copybooks. This practice should be extended. Modes of assessment should be developed to include the increased use of formative written feedback to students.
- State examination results are analysed and academic student achievement is evaluated and monitored. This is very good practice. Cognitive ability testing provides literacy monitoring and tracking.
- The school's academic council provides personal support to students and monitors students' academic grades on an ongoing basis. Monthly effort marks are provided for parents and students of first and second-year class groups while examination students receive grades on a monthly basis. This is very good practice.

SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT

- Science is a core subject at junior cycle. Physics, Chemistry and Biology are offered at senior cycle and Science forms a core part of the optional 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 in the main appropriate. However, sixth-year physics students receive four class periods per week, one period less than recommended in the syllabus. This deficit should be rectified.
- Access to the laboratory is good overall. However, laboratory access should be carefully monitored to ensure that each class group has sufficient access for investigative practical activities each week.
- The level of support for students with special educational needs is very good. Teachers are aware of students' individual needs and students are well supported in this regard.
- The school's laboratory and preparation areas are well organised. Students' project work is on display and equipment and chemicals are appropriately stored.
- Science is promoted in many ways including through Science Week activities, cross-curricular collaboration and participation in the annual ISTA Science Quiz. The commitment of teachers is praiseworthy.
- Relevant continuing professional development (CPD) courses are supported by senior management for all science teachers. Science teachers must ensure that they are registered to teach their junior and senior subjects.

PLANNING AND PREPARATION

- There was very effective individual teacher planning and good planning for resources was in evidence in advance of lessons observed.
- Well-formulated plans and schemes of work are prepared for Science and Physics. The good focus on health and safety including material on risk assessment and hazard identification is very positive. When these plans are reviewed, identified areas for development should include short, medium and long-term targets for subject development. Areas worthy of inclusion in the plans include analysis of state examination results, records and plans for teachers' ongoing CPD, scientific literacy development and the development of the profile of Science in the school.
- The content of the TY plan is very good as there is a focus on applications of Science and key skills development. However, the structure of the TY science plan should take further cognisance of Department guidelines.
- 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 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 of the school was given an opportunity to comment on the findings and recommendations of the report; the board chose to accept the report without response.