

An Roinn Oideachais agus Scileanna

Department of Education and Skills

**Subject Inspection of Science and Physics
REPORT**

**Dominican College
Sion Hill, Blackrock, Co. Dublin
Roll number: 60070K**

Date of inspection: 25 November 2014



**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	25 November 2014
Inspection activities undertaken <ul style="list-style-type: none">• Review of relevant documents• Discussion with principal, deputy principal and teachers• Interaction with students	<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 teachers

MAIN FINDINGS

- The quality of teaching and student learning was very high overall.
- The positive classroom atmosphere and very good rapport, supported high levels of student participation and motivation.
- Teaching methods were appropriate to students' abilities, needs and interests and information and communication technology (ICT) was used innovatively to reinforce learning and to support the school's literacy and numeracy strategy.
- Students were facilitated by teachers to be active in their learning, were challenged appropriately and were supported in developing many key skills.
- Individual and collaborative planning is of a very high quality, is reflective, consultative and developmental and the commitment of teachers in this regard is very praiseworthy.
- The various modes of assessment employed by teachers, including questioning strategies and formative written feedback provided in students' copybooks, supported student learning and understanding.

MAIN RECOMMENDATIONS

- The teaching and learning recommendations outlined in the body of this report should be explored at subject department level with a view to implementation.
 - When the science and physics plans are being reviewed, the appropriate assessment strategies, methodologies and resources outlined in the schemes of work should be linked with each section of the course.
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INTRODUCTION

Dominican College is a voluntary secondary school for girls with an enrolment of 414 students and serves an urban catchment area. Science was offered as an optional subject and is now offered as a core subject at junior cycle. Physics, Chemistry and Biology are options at senior cycle. Ten-week modules in Physics, Chemistry and Biology form part of the compulsory Transition Year (TY) programme.

TEACHING AND LEARNING

- The quality of teaching and student learning was very high overall. The positive classroom atmosphere and very good rapport, supported high levels of student participation and motivation.
- Teachers' individual preparation for lessons was very good overall. Resources were prepared in advance, thus ensuring that valuable lesson time was maximised. In one lesson, the presentation utilised could have been customised for the particular cohort of students in order to increase the relevance and impact of the material presented.
- Lessons were well structured; learning outcomes were shared with students and revisited at the conclusion of lessons, though this was not consistent across all lessons observed.
- Students were challenged appropriately and were supported collectively and individually in developing many key skills including critical thinking and analytical skills.
- ICT was used innovatively to reinforce learning and in some cases to support the school's literacy and numeracy strategy. Best practice was observed when ICT was appropriately used to link the classroom material to applications of Science and Physics.
- There was high quality teacher expertise overall and teaching methods were appropriate to students' abilities and interests. In almost all lessons there was an appropriate balance between teacher instruction and student activity. One lesson was in the main teacher led. It is recommended that an appropriate balance in favour of student activity be implemented.
- Teachers carried out short effective demonstrations in some cases. Consideration should be given to setting up a rota of experiments for students in order to maximise 'hands-on' practical activity for appropriate lessons.
- Students were challenged appropriately and were supported in developing many key skills. In a few instances, students should have been invited to provide input in advance of the teacher revealing the solution or the next step in the task.
- Further participation of students during the development of lesson topics in some cases would help support students' ownership of their learning. To support this process, students could be set a research task on the theme of the following lesson.
- The various modes of assessment employed by teachers, including questioning strategies and formative written feedback in students' copybooks, supported student learning and understanding. The quality of students' written work was very high overall.
- Themed worksheets and question sheets were distributed during some lessons and learning was appropriately consolidated. In a few lessons, formative assessment strategies should have been more fully integrated into students' learning experiences particularly through the development of formative written feedback.
- Questioning strategies were very effective overall in helping to ensure good levels of understanding and that appropriate levels of challenge were an integral part of lessons. The use of directed questions would further support student participation and would provide useful feedback to teachers.
- Scientific literacy and numeracy development was well integrated into each lesson.

- Teachers are commended on their commitment to making the laboratories supportive learning environments through displays of projects and student work.
- Examination results are analysed and reviewed by the science department and academic student achievement is monitored. It is very praiseworthy that this data informs teaching and learning and has led to collaborative dialogue and review within the science department.

SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT

- The school has introduced core science. This is praiseworthy as it supports scientific literacy for all students and offers all students the option to take a senior cycle science subject.
- The inclusion of compulsory ten-week modules in Physics, Chemistry and Biology in TY is effective as it enhances key skills development and greatly supports students in making an informed choice of science subjects for Leaving Certificate. The strong uptake of Physics is supported by an excellent TY module whereby applied physics skills are promoted and student project work is supported and assessed appropriately.
- The school's three science laboratories, chemical storage and preparation areas are very well organised. Access to a laboratory for double periods is very good and is timetabled appropriately.
- Wireless ICT is available in all classrooms and first and second-year students utilise personal tablet computers effectively. The school uses ICT systems to share resources among teachers and to distribute resources to students.
- Health and safety practice and planning is very good. The school's health and safety policy is currently under review.
- An individual education plan is available for each student with special educational needs. Strong links have been forged between the science and learning support departments.
- Students are encouraged to attend university open days and outreach events. The commitment of teachers to encouraging students to partake in a range of science-related co-curricular and extra-curricular activities is very good.
- Modes of assessment include questioning, project work, formal examinations, continuous assessment and correction and setting of regular homework in line with the school's homework policy. Monthly grades are entered on e-portal.

PLANNING AND PREPARATION

- Individual and collaborative planning is of a very high quality, is reflective, consultative and developmental and the commitment of teachers in this regard is very praiseworthy.
- Science and Physics plans are comprehensive and accurately portray the extensive level of supports and resources in place for the effective teaching and learning of science.
- Schemes of work are detailed, written up in terms of learning outcomes and they set out developmental targets for Science and Physics. This is very good practice. On review of the science and physics plans, the appropriate assessment strategies, methodologies and resources outlined in the schemes of work should be linked with each section of the course.
- The development of specific literacy and numeracy strategies for Science is very praiseworthy. Tests are returned to students together with a special template indicating keywords and spelling corrections and feedback. The student is also invited to give feedback. This is very good practice.
- Many teachers have undertaken an extensive programme of professional development. The frequency and relevant themes of subject department meetings and the effective

coordination and commitment of teachers all make major contributions to the high quality of teaching and student learning. New teachers to the science department are well supported.

- The identification of science department needs into the future through the inclusion of short, medium and long term goals and strategies is also very praiseworthy.

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.