An Roinn Oideachais agus Scileanna

Department of Education and Skills

Subject Inspection of Physics
REPORT

Blackrock College
Blackrock, County Dublin
Roll number: 60030V

Date of inspection: 27 February 2012

AN ROINN OIDEACHAIS AGUS SCILEANNA | DEPARTMENT OF EDUCATION AND SKILLS

REPORT
ON
THE QUALITY OF LEARNING AND TEACHING IN PHYSICS

INFORMATION ON THE INSPECTION

Date(s) of inspection	27 February 2012
Inspection activities undertaken • Review of relevant documents • Discussion with principal, deputy principal and teachers • Interaction with students	• Observation of teaching and learning during four class periods • Examination of students' work • Feedback to principal, deputy principal and teachers

MAIN FINDINGS

- Students' skills and competences were developed through a high level of student engagement with classroom activities.
- Students were motivated and challenged appropriately, enjoyed the lessons, and were encouraged to think critically through global and directed questions.
- Teaching methods, including the use of information and communication technology (ICT) were appropriate to students' abilities, needs and interests and real-life applications of Physics were seamlessly integrated into the classroom in some lessons.
- Student practical work was well organised, supported and managed.
- The content and skills developed in Transition Year (TY) lessons were good though some development in line with TY guidelines is needed.
- Formative assessment strategies and the varied modes of assessment had a positive impact on student learning though some further development is necessary.

MAIN RECOMMENDATIONS

- School management should consider timetabling a double period each week for Physics in line with syllabus recommendations.
- The current practice of students choosing senior cycle subjects at the end of third year should be reconsidered so that all students can sample Physics in TY in advance of choosing the subject for Leaving Certificate.
- Real-life applications of Physics and historical aspects of the subject, as outlined in the TY subject plan, should be integrated into TY lessons wherever possible.
- The agreed schemes of work which are within the subject plan should be further developed by placing more focus on learning outcomes, methodologies, assessment strategies and resources for each section of the course.

INTRODUCTION

Blackrock College is fee-paying voluntary secondary school with an enrolment of 1002 students. The college caters for students from second year to sixth year. Science is offered as a core subject in second and third year and Physics, Chemistry and Biology are options at senior cycle. Agricultural Science is currently offered as an additional subject. Physics forms part of the compulsory TY programme.

TEACHING AND LEARNING

- The majority of lessons were well structured. In most cases lesson objectives were shared with students at the outset, a good practice which should be extended. In addition, most lessons were appropriately summarised.
- Student learning was enhanced through the very good rapport, high expectations and affirmation of student effort evident in all lessons. Students were facilitated to be active in their learning and this together with the very positive classroom atmosphere supported high levels of student participation and motivation.
- Questioning strategies, including the use of global and directed questions were very effective in helping to ensure good levels of student understanding. Appropriate levels of challenge were an integral part of lessons.
- Students' skills and competences were developed through a high level of student engagement with classroom activities. Observation skills were enhanced through very effective teacher demonstrations and through peer observation. Student practical skills were well developed through well-managed and supported pair work.
- Student practical work was well organised, supported and managed. Students recorded their observations in some lessons. This good practice should be extended.
- Teaching methods were appropriate to students' abilities, needs and interests and real-life applications of Physics were seamlessly integrated into the classroom in some lessons. This is praiseworthy. However, the objective of introducing students to real-life applications of Physics as outlined in the TY subject plan was not evident in the TY lessons observed. Real-life applications of Physics and historical aspects of the subject should be integrated into TY lessons wherever possible. The setting of student research tasks in advance of such lessons is recommended. Teachers should be cognisant of TY guidelines when planning for TY lesson delivery.
- Classroom management was very good overall. The effective classroom organisation facilitated learning. Teachers had high expectations of students commensurate with their abilities and learning styles.
- The board was effectively utilised for recording key words, concepts, diagrams and mathematical formulas. This approach supported scientific literacy and numeracy development. The use of ICT was appropriate to students' abilities, needs and interests. The technology was expertly used to demonstrate harmonics, as students played musical instruments, and to design electrical circuits in advance of related student practical activities.
- Formative assessment strategies were very well employed in some lessons. Students should be encouraged to record practical errors and precautions for each mandatory investigation and to complete corrections on an ongoing basis.
- Examination results are analysed and academic student achievement is monitored. It is praiseworthy that the level of student achievement is very high and that this data informs teaching and learning.

SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT

- The uptake of Physics and the other science subjects at senior cycle is very good.
- Time allocation to all science subjects is satisfactory, however in the current fortnightly timetabling arrangements, Physics receives a double period each fortnight. School management should consider timetabling a double period for Physics each week in line with syllabus recommendations.
- Students are required to choose their subjects for Leaving Certificate at the end of third year rather than at the end of the compulsory TY programme. This practice should be reconsidered so that all students can sample Physics in TY in advance of choosing the subject for Leaving Certificate. The college should make reference to TY guidelines in this regard.
- Resources and facilities to support science education at junior and senior cycle are very good. Laboratories are well resourced and very good ICT facilities are in place. Class sets of computers and practical equipment support student investigative practical work in Physics.
- 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 weekly report cards, monthly progress cards, formal examinations, continuous assessment and regular monitored homework. Parents are kept well informed of student progress in many ways including through parent-teacher meetings and reports.

PLANNING AND PREPARATION

- Collaborative planning for Physics is very good overall and is very effectively managed by the Physics coordinator. Teachers' individual planning was very effective in helping to ensure quality in delivery of lessons and in supporting students in their work. Lesson resources including practical and ICT equipment were set up and ready to use.
- Science department planning meetings are regularly convened by the coordinator of Science. Minutes are maintained and an annual report is submitted to school management.
- The physics plan is well structured and developed and is comprehensive in outlining the many aspects of provision and support for Physics. In addition to organisational material, key areas addressed in the plan include sections on planning for students with additional needs including gifted students, promotion of literacy and numeracy strategies, teacher CPD and a three-year action plan for subject development. The plan is self-reflective in that it promotes department self-evaluation. This approach is praiseworthy.
- The agreed schemes of work which are within the subject plan should be further developed by placing more focus on learning outcomes, methodologies, assessment strategies and resources for each section of the course.
- The content of the TY plan is very good overall, as there is a focus on applications of Physics and the development of skills.

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.

Published October 2012.