

An Roinn Oideachais agus Scileanna

Department of Education and Skills

**Subject Inspection of Science and Physics
REPORT**

**Coláiste Éanna
Ballyroan Road, Dublin 16
Roll number: 60342R**

Date of inspection: 2 October 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

Dates of inspection	1 and 2 October 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 six class periods• Examination of students' work• Feedback to principal, deputy principal and teachers

MAIN FINDINGS

- There was a good atmosphere combined with positive classroom interactions in all lessons.
- Teachers used their expertise to choose a variety of methodologies to reinforce learning.
- There was a high level of student interest and motivation and students were knowledgeable regarding lesson content.
- Good differentiation strategies were in evidence in many lessons to cater for the range of students' abilities.
- Best practice was observed when there was an appropriate balance between teacher input and student involvement in lessons.
- A positive culture of on-going testing and setting of homework was in evidence though some formative assessment strategies will require improvement.

MAIN RECOMMENDATIONS

- Some lessons will require a more open, investigative, focused and less teacher-directed approach to learning.
 - Assessment practices should be extended to place a positive focus on higher-order individual questions, the use of customised worksheets and the further monitoring of students' assignments.
 - School timetabling practices should address the appropriate distribution of lessons and avoid the practice of double periods which are split by a break.
 - The subject plans and the schemes of work for Science and Physics should be further developed.
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INTRODUCTION

Coláiste Éanna is a voluntary secondary school under the trusteeship of the Edmund Rice Schools Trust (ERST) with a current enrolment of 625 students. The school offers a range of programmes including the Leaving Certificate Vocational Programme (LCVP) and an optional Transition Year (TY) programme. Science is offered as a core subject at junior cycle and Physics, Chemistry and Biology are options at senior cycle. Science forms part of the TY programme.

TEACHING AND LEARNING

- There was a good atmosphere in all lessons. Good teacher-student rapport ensured positive classroom interactions in all lessons. Students were affirmed and encouraged for their efforts and contributions. There was a high level of student interest and motivation and students were knowledgeable regarding lesson content.
- Good differentiation strategies were in evidence in many lessons to cater for the range of students' abilities.
- The majority of teachers were very well prepared for lessons. Resources, materials and equipment were sourced in advance. Intended learning outcomes were clear, differentiated as necessary, shared with students and revisited in the majority of lessons. This good practice should be extended. In one lesson, themes were somewhat disconnected. This practice can be avoided through more extensive individual teacher planning.
- Best practice was observed when students were enabled to engage actively in their learning and were challenged appropriately. This also included the development of key skills including good observation skills, problem-solving and critical thinking skills. However, some lessons will require a more open, investigative, focused and less teacher-directed approach to learning. Students should be requested to predict the next step in the problem or investigation rather than the revelation of the outcome by the teacher. The setting of student research tasks in advance of the development of a new body of knowledge will substantially aid this process.
- In a small minority of lessons, teaching methodologies were utilised to advance knowledge at an inappropriately fast pace. Therefore, the pace of all lessons should be appropriate to the advancement of learning for all students. Best practice was observed when differentiation was in evidence to cater for the range of students' abilities.
- Laboratory space as an effective learning environment was very well utilised overall. Investigative practical work was conducted in some lessons, however, activities could have been more comprehensive. For example, the use of a customised worksheet would have appropriately provided a focus on investigative outcomes.
- In some cases, there was excessive teacher direction during the collection of experimental results. An open-ended investigative process would be of more benefit to students with a clear focus on experimental error. Further collaborative group work would also have advanced learning in some lessons. Best practice was observed when there was an appropriate balance between teacher input and student involvement in lessons.
- The board was used to highlight key words and concepts and as an aid to problem solving in many lessons. The utilisation of a second board to highlight key learning objectives, homework assignments and as a means of bringing learning closer to students is praiseworthy.
- Good focus and attention was placed on subject-specific language. This is praiseworthy as it supports scientific literacy development.
- Information and communication technology, (ICT) was used in an innovative way in some lessons to develop and support student learning and understanding. This practice should be extended.

- A wide range of assessment strategies was used to evaluate students' progress. All modes of assessment supported student learning. Formative assessment was used as a means of encouraging students to reflect on and improve the quality of their work.
- A positive culture of on-going testing and setting of homework was in evidence though some formative assessment strategies will require improvement.
- The overall quality of students' laboratory notebooks and copybooks is good. This is supported in some cases by teachers' positive annotation of students' work and oral feedback to students. Assessment practices should be extended to place a positive focus on higher-order individual questions and the further monitoring of students' assignments. A good depth of knowledge and understanding was demonstrated by students.
- The clear focus on homework assignments and correction was a key assessment feature of all lessons. Examination results are analysed and student academic achievement is monitored. This is good practice.

SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT

- There is very good provision for science education in the school. Students are very well supported in making an informed subject choice for Leaving Certificate.
- Time provision for all science subjects is in line with syllabus recommendations. School timetabling practices should address the appropriate distribution of lessons and avoid the practice of double periods which are split by a break.
- The four science laboratories and preparation areas are very well organised and maintained. Access to the laboratories is very good.
- Students are encouraged to partake in a number of co-curricular and extra-curricular activities including SciFest and Science Week events.
- Formal examinations take place on three occasions throughout the year and reports are sent to parents following each examination.
- Laboratory ICT facilities are good and include data-projectors, computers and internet access.
- Health and safety practices observed were very good. The overall school health and safety statement dates to 2008 and is in urgent need of review. This should be carried out following an audit of facilities and in consultation with science and other relevant subject departments.
- Students with special needs are well catered for in the school.
- The TY curricular student exchange programme with a neighbouring girls' school is praiseworthy.
- In-service and relevant continuing professional development (CPD) courses are supported by school management for all science teachers. A teacher professional development strategy should be developed as part of science department planning.

PLANNING AND PREPARATION

- The science and physics plans outline the organisational aspects of the subjects. The future development of the plan should include a section on medium-term targets for the development of Science and Physics. This should include a literacy and numeracy strategy for Science, promotion of self-evaluation practices in the science department and details of how formative assessment strategies may further support learning in science education. The schemes of work should be developed to link each learning outcome to its assessment strategy and to resources utilised and teaching methods employed.

- The content and focus of the TY plan for Science is very good overall. The future focus of TY planning should be on skills development. The utilisation of the transition unit template may aid this process.
- Minutes of science department meetings reveal a collaborative approach to subject planning. Topics discussed include laboratory equipment requirements, CPD, planning and assessment.
- Currently, the duties for the coordination of science are assigned to a special duties teacher post (SDP). Assigned duties are carried out effectively. It is important that leadership capacity in the science department be developed by school management.

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.