

An Roinn Oideachais agus Scileanna

Department of Education and Skills

**Subject Inspection of Science and Physics
REPORT**

**Ardcoil Rís
North Circular Road, Limerick
Roll number: 64201T**

Date of inspection: 6 March 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**

INFORMATION ON THE INSPECTION

Dates of inspection	5 and 6 March 2015
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 eight class periods• Examination of students' work• Feedback to principal, deputy principal and teachers

MAIN FINDINGS

- The quality of learning and teaching ranged from good to very good and in some lessons teachers employed good differentiation techniques to maximise student engagement.
- Teachers were generally very well prepared and good use was made of information and communication technology (ICT) in the lessons observed.
- Student behaviour was exemplary and a very positive student-teacher rapport was evident in all lessons.
- Science is a core subject in the junior cycle with classes of mixed ability in first year only and the uptake of Physics is very good.
- The school has four well-resourced science laboratories and management and teachers work collaboratively to ensure that all junior and senior cycle science lessons take place in these specialist rooms.
- The science department's subject planning is well advanced and they include common schemes of work, record keeping and an analysis of certificate examination results.

MAIN RECOMMENDATIONS

- The science teachers should increase the emphasis on investigation and enquiry in the range of teaching and learning methodologies used.
 - The science department should expand the range of differentiation strategies employed and ensure that all students benefit from their use.
 - Consideration should be given to increasing the number of class contact hours available to Science in first year.
 - The science department's schemes of work should be extended to link the learning outcomes with specific teaching and learning methodologies.
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INTRODUCTION

Ardcoil Rís is an all-boys voluntary secondary school in Limerick city operating under the trusteeship of the Edmund Rice Schools Trust (ERST). At the time of the inspection it had an enrolment of 740 students. In addition to the Junior and Leaving Certificate, the school offers an optional Transition Year (TY) programme.

TEACHING AND LEARNING

- The quality of teaching and learning in Science and Physics ranged from good to very good. There was use of investigative and enquiry based methodologies in some lessons, however the science department should strive to use these methods across as many lessons as possible in order to promote discovery learning.
- Lessons were generally very well managed and had clear lesson objectives, good pacing and a well-planned structure. Teachers activated prior learning at the start and used the learning outcomes to recapitulate at the end of all lessons. The science department should encourage students to use these outcomes to self-reflect on their own learning.
- A variety of effective methodologies, including good use of ICT, was observed in lessons. These good practices included clear teacher-instructions, student performance of experimental work, pair work, individual tasks and student note-making. The majority of lessons had a very good balance between teacher instruction and student activity.
- Classroom management was very good and student behaviour was exemplary. A very positive student-teacher rapport was evident in all lessons and students were affirmed for their contributions and efforts. The laboratories were print rich with topical, relevant and up-to-date scientific posters and materials.
- Questioning was used to good effect by teachers to ascertain student learning. Questions were best when they were directed and students were given time to formulate a response. Good use was also made of higher-order questions and students were encouraged to answer clearly and to project their voice.
- Good differentiation techniques to maximise student engagement in learning were observed in some lessons. However, in the context of the school's planned move to mixed ability in all junior science year groups the science department should expand the range of differentiation strategies employed and ensure that students of all abilities benefit from their use.
- Homework was being set, monitored and corrected in all lessons. The good practice of setting homework early was seen in some lessons. Students were being provided with written feedback in their practical copybooks and other work to complement the oral feedback provided during lessons. This practice is commendable.
- Good aspects of literacy and numeracy were observed in most lessons. Word substitution, keywords, and identifying prefixes and suffixes of words were used to good effect in a number of lessons. The importance of units was emphasised when they arose and teachers encouraged students to speak aloud when answering questions.

SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT

- Whole school support for the sciences is good. Science is a core subject at junior cycle and students can choose a minimum of two modules of science subjects in the optional TY programme. Biology, Chemistry, Physics and Applied Mathematics are offered to students in an open subject choice for the Leaving Certificate programme. The uptake of Physics is above the national average and has more than doubled in the last number of years.
- Class period allocation for first-year Science is below the syllabus guidelines. Currently only one double and one single lesson are provided for this year group. Management should consider providing an additional single period per week for these students in order to achieve a better distribution of class periods throughout the week. Time allocation for Physics fully meets the syllabus guidelines.
- The school has four science laboratories and a demonstration room. The science department are provided with an annual budget to ensure that these laboratories are sufficiently resourced. The teachers also have access to a network folder for sharing any ICT resources. The students have full access to the laboratories for all science subjects.
- All laboratories have appropriate safety equipment and chemicals are stored correctly. The school has an up-to-date health and safety policy and risk assessments are undertaken for each laboratory annually.
- The school has links with the local universities and this allows the teaching staff to encourage students to partake in a range of science related co-curricular and extra-curricular activities. These include the BT Young Scientist and Technology Exhibition, SciFest and quizzes. The TY students and science teachers also plan a three day educational excursion to London to visit a multitude of scientific themed locations. These activities enhance students' learning and teachers are to be commended for their role in facilitating students' participation.

PLANNING AND PREPARATION

- A subject co-ordinator is appointed and the role is rotated annually. Formal meetings are held once per term. Minutes of these meetings, which include targets for the academic year based on analyses of certificate examinations, are communicated to senior management. A record of the continuing professional development that the teachers undertake each year is listed and the science department produce a report on their operations and procedures for the year. These are commendable practices.
 - Common schemes of work are in place which include timeframes, learning outcomes, and a teacher review section. These schemes should now be extended to link the learning outcomes with specific teaching and learning methodologies. This would provide the teachers with an opportunity to share practices and to increase the number of enquiry based methodologies across the science department.
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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.

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