

**An Roinn Oideachais agus Scileanna**  
**Department of Education and Skills**

**Subject Inspection of Science and Physics**  
**REPORT**

**Ard Scoil na nDéise**  
**Convent Road, Dungarvan, Co. Waterford**  
**Roll number: 64900W**

**Date of inspection: 9 March 2016**



**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**

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**INFORMATION ON THE INSPECTION**

<b>Dates of inspection</b>	8 and 9 March 2016
<b>Inspection activities undertaken</b> <ul style="list-style-type: none"><li>• Review of relevant documents</li><li>• Discussion with principal, deputy principal and teachers</li><li>• Interaction with students</li></ul>	<ul style="list-style-type: none"><li>• Observation of teaching and learning during two double and two single class periods</li><li>• Examination of students' work</li><li>• Feedback to principal, deputy principal and teachers</li></ul>

**MAIN FINDINGS**

- The overall quality of teaching and learning ranged from very good to lessons in which development was required.
- In the majority of lessons, high expectations of teachers, affirmation of student effort, enjoyment of learning, and positive interpersonal relations all contributed to a supportive learning environment.
- Student investigative tasks were very well organised and implemented overall, though in a minority of instances inquiry-based learning was quite restrictive.
- Creative differentiation strategies were in evidence in many lessons to cater for the range of students' abilities, though appropriate balance between student activity and teacher instruction was not always present.
- In the best lessons, teachers used their expertise to choose a variety of methodologies to reinforce learning and to encourage students to learn new skills and to think critically about problems and assigned tasks though all lessons were not appropriately structured.
- Formative assessment strategies worked very well overall though some development in this area will be required.

**MAIN RECOMMENDATIONS**

- Teachers should plan for and implement an appropriate balance between teacher instruction and student activity in every lesson.
  - Teachers should maximise the use of formative written feedback for students and develop mechanisms to check the level of student understanding during lessons.
  - All teachers should ensure that lessons are well structured.
  - Science and physics plans and schemes of work, including the Transition Year (TY) physics plan, require review and development by teachers as outlined in this report.
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## **INTRODUCTION**

Ard Scoil na nDéise is a girls' voluntary secondary school under the trusteeship of Catholic Education an Irish Schools Trust (CEIST). The school has a current enrolment of 380 students. In addition to the Junior Certificate and the Leaving Certificate, the school offers an optional TY programme.

## **TEACHING AND LEARNING**

- The overall quality of teaching and learning ranged from very good to lessons in which development was required. Best practice was observed when student participation and activity were maximised. Teachers should plan for and implement an appropriate balance between teacher instruction and student activity in every lesson.
- The majority of lessons were well structured and were delivered at an appropriate pace; however, the structure and pace of some lessons required improvement. Best practice was observed when lesson objectives were shared, written on the board and revisited at the lesson's conclusion. This practice should be extended to all lessons.
- High expectations of teachers, affirmation of student effort, enjoyment of learning, and positive interpersonal relations all contributed to a supportive learning environment. There was a very good atmosphere in all lessons. There was a high level of student interest and motivation and students were knowledgeable regarding lesson content.
- Teachers were well prepared for lessons overall, though better advance planning for maximising student participation in learning in one lesson was required. When more challenging abstract topics are chosen for a particular year group, sufficient time should be built into the lesson to consolidate and check student understanding. Note-taking by students was of limited value in such circumstances and lessened the time available for classroom interactions.
- Student investigative tasks were very well organised and implemented overall. Students were encouraged to think and reflect on their work, to look at trends in the data collected and establish relationships based on data collected. This is very good practice. In one lesson, where student tasks were mainly teacher directed, inquiry-based learning was quite restrictive. This should be addressed.
- Creative differentiation strategies were in evidence in many lessons to cater for the range of students' abilities. Teachers circulated as students worked in pairs or groups and provided help and support as necessary.
- Teachers used their expertise to choose a variety of methodologies to reinforce learning, and encouraged students to learn new skills and to think critically about problems and assigned tasks. Information and communications technology (ICT) was generally used innovatively and appropriately to support learning.
- Appropriate focus was placed on scientific literacy and numeracy during all lessons. This good practice helped students gain a good understanding of key ideas and terminology and enhanced students' problem-solving skills. In some lessons, students recorded key-words on the board which were revisited at the conclusion of lessons. This is good practice.
- A positive culture of higher-order questioning, ongoing testing and setting of homework was in evidence. Best practice was observed when questions were directed so that individual levels of understanding were checked and student participation was maximised.
- Formative assessment strategies worked very well overall. Assessment for learning strategies should include the use of formative written feedback for students and mechanisms to check the level of student understanding during lessons. The overall quality of students' laboratory notebooks and copybooks was good. This is supported by teachers' positive annotation of students' work and oral feedback to students.

- There were numerous references to the role of women in developing Science to mark International Womens' Day. Also, references to famous scientists, Nobel Laureates and the history of Science played a positive role in increasing student interest in the lesson topic. Teachers should set a student research task in advance of some lessons to afford students the opportunity to contribute more fully to these useful and relevant discussions.

#### **SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT**

- Science is offered as a core subject in mixed-ability class groups at junior cycle. Physics, Chemistry and Biology are options at senior cycle. Half-yearly modules of Physics, Chemistry and Biology also form part of the optional TY programme.
- Time provision for all science subjects is in line with syllabus recommendations.
- Students are well supported in making an informed subject choice for Leaving Certificate.
- The three science laboratories are very well organised and maintained. Access to the laboratories is very good overall.
- Students are encouraged to partake in a number of co-curricular and extra-curricular activities including Science Week events. It is very praiseworthy that the school hosts an annual science workshop for feeder primary schools.
- Teachers are encouraged and supported by school management to participate in continuing professional development (CPD). Whole staff CPD, focused on improvement in student learning, has supported the integration of school self-evaluation (SSE) practices into science education.
- The school's health and safety statement which dates to 2013, requires review and update.
- Many recommendations made in a prior subject inspection report have been fulfilled, as documented in the subject plans.

#### **PLANNING AND PREPARATION**

- Science and physics plans are comprehensive and reflective in supporting the development of science education in the school. There is very good focus on developing literacy and numeracy and on the analysis and reflection on state examination results. Areas that require development include action planning for subject development to include further integration of School Self Evaluation (SSE) practices into science education and inclusion of personal professional development plans for each member of the science department.
- The schemes of work have been collaboratively developed and outline how the syllabus will be delivered during the year. On review by teachers, an agreed template should be developed to include resources, methodologies, assessment and self-evaluation strategies for each section of the course.
- TY planning focuses on subject sampling and research projects based on student interests. Some content is closely aligned to the Leaving Certificate syllabus. It is recommended that the content of the TY plan be reviewed to focus more on key skills, practical applications of Science and student project work. A common template for this purpose should be agreed by the science teachers. TY portfolio assessment for Science should be considered by all teachers.
- Minutes of science department meetings reveal a collaborative and progressive approach to subject planning. Pedagogy should form a key component of future discussions. Coordination of Science is carried out effectively.

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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, and the response of the board will be found in the appendix of this report.

# **Appendix**

**SCHOOL RESPONSE TO THE REPORT**

**Submitted by the Board of Management**

**Part A: Observations on the content of the inspection report**

The Board of Management acknowledges receipt of this report and notes the recommendations. The areas addressed in these recommendations will continue to form part of the subject department planning process.

**Part B: Follow-up actions planned or undertaken since the completion of the inspection activity to implement the findings and recommendations of the inspection**

