

**An Roinn Oideachais agus Scileanna**

**Department of Education and Skills**

**Subject Inspection of Science  
REPORT**

**Coláiste Cholmcille  
Indreabhán, County Galway  
Roll number: 71250A**

**Date of inspection: 05 May 2010**



**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**

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**SUBJECT INSPECTION REPORT**

This report has been written following a subject inspection in Coláiste Cholmcille. It presents the findings of an evaluation of the quality of teaching and learning in Science and makes recommendations for the further development of the teaching of this subject in the school. The evaluation was conducted over one day during which the inspector visited classrooms and observed teaching and learning. The inspector interacted with students and teachers and examined the students' work. The inspector reviewed school planning documentation and teachers' written preparation. Following the evaluation visit, the inspector provided oral feedback on the outcomes of the evaluation to the principal. 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.

**SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT**

Coláiste Cholmcille is a co-educational vocational school that operates under the auspices of County Galway Vocational Education Committee. The school is located in Indreabhán, County Galway. The area in which the school is located is a Gaeltacht region. In Coláiste Cholmcille, teaching and learning take place through the medium of Irish. The school has a diverse intake of students and it benefits from participation in the Department's Delivering Equality of Opportunity in Schools (DEIS) programme.

At junior cycle, Science is a core subject and this is commendable. The science subjects that the school offers at senior cycle are Transition Year (TY) Science, Leaving Certificate (LC) Biology, and LC Agricultural Science. The range of science subjects offered by the school gives rise to potential implications for students' future study and career choices. For example, not studying a physical science can mean that students do not meet the entry requirements for a number of third-level courses, such as medicine, dentistry and pharmacy, in some Irish universities. The school is aware of this issue and it strives to make available, within its resources, the broadest possible range of science subjects based on the students' choices. This issue has been raised in a previous inspection report in 2006 and the advice that was offered in that report remains current: to ensure that students and their parents are advised of the implications relating to their subject choices. The school reports that students are advised during guidance lessons on matters relating to their subject choices.

The time allocation for Science is appropriate. Classes retain the same teacher throughout junior cycle Science and this is beneficial as it supports continuity of learning for the students.

The science facilities consist of one laboratory, an adjoining classroom that may be used for a limited amount of practical work and an adjacent preparation area. The facilities are clean, well maintained, in good repair and are fully suitable for the requirements of junior cycle Science. The laboratory is a pleasant learning space and it benefits from displays of charts, posters and some student work. The preparation area is small and has limited storage space. Good work has been

done by the science staff in creating kit boxes for science experiments. This good work has helped to optimise the use of the available storage space.

Information and communication technology (ICT) equipment is readily available to the science teachers and the science facilities are equipped with a data projector and laptop computer. Each teacher also has a laptop computer. In addition, data logging equipment and a digital microscope are available.

There is good support by the school for the teachers' continuing professional development. They have attended in-service courses for the revised science syllabus, are members of the Irish Science Teachers' Association, and have participated as members of Tasc Fhórsa Ghaeltacht na Gaillimhe.

There is good support by the science teachers for students' participation in a wide range of extracurricular and co-curricular science-related activities such as Science Week, trips to educational facilities, participation in the Young Scientists Exhibition, and ecology fieldtrips. The good work done by the science teachers in supporting students in these activities is to be commended.

#### **PLANNING AND PREPARATION**

The quality of planning for Science in this school is good. During the inspection, the subject plan was viewed. It is a comprehensive document and outlines clearly the structures that are in place in the subject department. These structures are wholly appropriate. The subject plan also gives an outline of the work to be covered during each year of junior cycle. It was evident that this plan was being followed by the teachers. The subject plan beneficially informs the teaching and learning that take place. The good work done by the teachers in developing it is to be commended.

In addition to the subject plan, individual teachers' planning documentation was viewed and this was of a high quality. The quality of the planning work undertaken by the science teachers is an indication of their commitment to addressing the recommendation of the 2006 report that relates to further developing their planning work. Their good work in addressing this recommendation is commended.

The quality of lesson preparation was high. All the requisite materials for each lesson had been prepared in advance and were readily to hand. Each lesson proceeded smoothly because of the high quality of preparation undertaken by the teachers. The teachers demonstrated a high level of subject matter expertise and dealt expertly with all questions that were posed by the students.

#### **TEACHING AND LEARNING**

There was a positive, supportive learning atmosphere in each lesson that was observed. The students were addressed by name and it was evident that they were comfortable in their classes. They worked well with other students and they were generally enthusiastic to participate in lesson activities.

Throughout each lesson, Irish was used as the medium of instruction and an over-reliance on English and on translation was avoided. This was heartening to observe as it was evident that there was a wide range of linguistic and academic abilities among the students and so the use of Irish as the medium of instruction required the teachers to be aware of each student's ability and to assist the students when needed.

A variety of teaching methodologies was used during the lessons that were inspected. For example, good use of ICT was observed during the inspection. Fundamental to supporting students' learning was the practical work that formed a key feature of each lesson. Students were engaged by the practical work and interaction between the inspector and the students revealed that they enjoyed their work. Of particular note was the high level of individual attention from which students benefitted during the lessons. In general, the questioning style used during the lessons observed was global questioning. It would be useful for the science staff to discuss how developing further use of directed questions, where the teacher poses a question, allows time for students to reflect, and then directs the question at one or several named students, might be integrated within current practices.

Interaction between the inspector and students revealed that while there was a range of academic abilities and a variety of competence in using Irish, students were generally knowledgeable about the topics under study and were enthusiastic to participate in the lessons. Some students with whom the inspector spoke demonstrated particularly commendable initiative in their learning. For example, it was noted that several students were recording new scientific terms in a copybook and were attaching an explanation to each new term. This initiative and the students' general enthusiasm to learn are commended.

## **ASSESSMENT**

There are appropriate arrangements in place for regularly assessing students' progress in Science and for periodically communicating the results of these assessments to parents. The main methods of assessing students in Coláiste Cholmcille include homework, questioning, and classroom activities. Students use a journal to record their homework and it is monitored by their teachers and by their year head.

Several students' journals were examined in each lesson that was inspected. It was evident from their journals that, in general, students would benefit from a more systematic approach to recording their homework. Some students reported that they received homework more frequently than they had recorded in their journals. A sample of copybooks containing students' experimental work was viewed. These copybooks showed that students had completed a good amount of practical work. This work is monitored by the teachers with monitoring most frequently taking the form of tick-based correction and some affirming comments. Students' homework copybooks were also viewed. These showed that homework was given periodically and that monitoring and correction of homework was undertaken by the teacher. After considering the current practices relating to homework in Science and materials viewed during the inspection, it is advised that benefit would accrue from developing a renewed focus on the frequency with which homework is given and with which it is recorded by the students; developing the types of monitoring, correction and feedback used to improve students' learning; and broadening the variety of homework assignments that may be given to students. For example, students' homework tends to consist of written exercises from the textbook, learning by heart, and revision for examinations. There is scope to develop exercises that more frequently engage students in research-based homework and that enable students to use their creative and literary skills. For example, students might be asked to make and record observations at home relating to

topics covered during their lessons, they might be assigned a task of writing a short poem, rhyme, or verse to summarise something they had learned, or they may be asked to perform some research on a topic relating to their studies. In relation to the monitoring and correction of homework, practices such as peer assessment could be trialled and the award of marks for the quality of students' homework could be integrated formally within the current assessment practices. The aim of this advice is to ensure that students see the value inherent to homework, that they make maximum use of feedback they receive from their teachers to improve their learning, and that they understand and accept that responsibility for their own learning rests primarily with themselves. Advice for teachers on the use of assessment for learning techniques when giving feedback to students may be found at [www.ncca.ie](http://www.ncca.ie).

The school has the good practice of comparing the results obtained by its students in the certificate examinations with the relevant national averages. The teachers and the school management have identified as a priority the need to raise students' attainment in Junior Certificate Science. This was discussed during the inspection and it is recommended that this issue be the focus for future development and planning in Science. It is advised that multiple strategies may be necessary to achieve the results desired by the school. Among the strategies that would be worth trialling would be team teaching, direct feedback from students, and the use of co-operative teaching. It is essential that whatever strategies are trialled be supported by a formal system that assesses improvements in students' learning. Central to such assessment should be feedback from students themselves. In this way, the success of the strategies may be evaluated by the science staff and evidence-based decisions may be made on whether new strategies should be trialled.

## **SUMMARY OF MAIN FINDINGS AND RECOMMENDATIONS**

The following are the main strengths identified in the evaluation:

- The science teachers demonstrate commitment and dedication to providing a high quality of science education for their students and they are enthusiastic in continuing to develop the quality of science education experienced by each student.
- In Coláiste Cholmcille, Science is well resourced and the facilities are in good repair, well maintained and present a pleasant learning environment.
- There is good support by the school for the teachers' continuing professional development and by the teachers for students' participation in a range of extracurricular and co-curricular science-related activities.
- The quality of subject planning and the quality of preparation for lessons were high.
- A variety of teaching methodologies was used and fundamental to students' learning was the practical work in which they were engaged during each lesson.
- There was a positive atmosphere in each class.

As a means of building on these strengths and to address areas for development, the following key recommendations are made:

- Strategies that focus on improving students' attainment in the certificate examination in Science should be developed and implemented.
- There should be a renewed focus on homework practices and the advice offered on this issue in this report should be adopted.

Post-evaluation meetings were held with the principal at the conclusion of the evaluation when the draft findings and recommendations of the evaluation were presented and discussed.

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