An Roinn Oideachais agus Scileanna

Department of Education and Skills

Subject Inspection of Science and Chemistry
REPORT

Calasanctius College
Oranmore, County Galway
Roll number: 63100I

Date of inspection: 17 September 2010
REPORT
ON
THE QUALITY OF LEARNING AND TEACHING IN SCIENCE AND CHEMISTRY

SUBJECT INSPECTION REPORT

This report has been written following a subject inspection in Calasanctius College. It presents the findings of an evaluation of the quality of teaching and learning in Science and Chemistry, and makes recommendations for the further development of the teaching of these subjects 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. 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.

SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT

Calasanctius College is a co-educational, secondary school that operates under the trusteeship of CEIST (Catholic Education, an Irish Schools Trust). The school is located in Oranmore, County Galway, and it serves students from a diversity of backgrounds, rural and urban.

The uptake of Junior Certificate Science at the higher level is very good in this school. Students’ attainment in Science in the Junior Certificate examination is also very good. Uptake and attainment are equally healthy in the case of Chemistry.

The total time allocations for Science and for Chemistry fully meet the requirements of the respective syllabuses. Science is a core subject in junior cycle, and all class groups are of mixed ability. The school offers Biology, Chemistry and Physics in senior cycle, and the uptake across these subjects is very good. This would indicate that students have positive attitudes to science subjects as a result of their experiences of learning Science in junior cycle.

The option blocks in senior cycle are based on the students’ choices, and this is best practice. In addition, the school’s optional Transition Year (TY) programme has a year-long science component. Exposure to science subjects during TY helps to inform students’ subject choices for senior cycle.

The science facilities were viewed during the inspection. They are clean, bright, very well maintained, and are in optimal condition. The science laboratories are very well resourced and organised. There is also very good provision of information and communication technology (ICT) equipment.

The school provides very good support for the teachers’ continuing professional development. For example, the board of management has established a budget for professional development activities, and teachers may apply for funding to subsidise the costs of undertaking further...
education or training courses. The teachers are all members of the relevant subject association, and they play a very active part in supporting the work of the local branch. The professional commitment that the science teachers have given to developing and sustaining a community of practice within their own school and more widely within the region is to be commended.

The science teachers demonstrate their commitment to providing a wide-ranging science education by supporting students’ participation in activities such as the Young Scientist exhibition, Science Week activities, science quizzes, and other extracurricular science-related activities. These activities give students a deeper appreciation of the subject and promote their interest in science and their motivation to study it.

PLANNING AND PREPARATION

The quality of planning and preparation that was observed during the inspection was excellent. It was evident that the work of the science teachers is underpinned by a spirit of teamwork, professional dialogue, and a strong sense of caring for the students and for each other. An excellent example of teamwork is the use of ICT to develop and share learning resources. Over the last number of years the teachers have made use of the school’s network to share the materials that they create or acquire and to build up a collection of valuable teaching and learning resources.

The science plan and the chemistry plan were viewed as part of the inspection. The plans showed that a very large amount of work had been undertaken to develop them. They are well laid out and their content provides a useful guide for individual teachers’ planning.

At a whole-school level there are very good structures in place that support planning for Science and for Chemistry. For example, there is a subject co-ordinator, there are frequent meetings of the subject department and the decisions taken at these meetings are recorded, and review and self-evaluation are built into the planning process.

TEACHING AND LEARNING

Overall, teaching and learning of a very high standard were observed during the inspection. All of the lessons ran very smoothly because they were very well prepared. All of the materials for each lesson, practical and theoretical, were to hand and had been prepared in advance. The teachers all demonstrated their subject expertise in the way they dealt with questions posed by the students and the way in which they introduced and incrementally guided the students through the topics that were being taught.

A wide range of very effective teaching and learning methodologies was observed. All lessons included the use of ICT, and it was evident that ICT is used extensively in presenting and explaining material to students and in sparking their interest in the topics they study. A number of lessons also provided opportunities for students to practise pronouncing new scientific terms, something which helps to develop their phonological skills. Where practical work was observed, it was undertaken safely and efficiently. The students worked very well together, and the experimental work was clearly conducive to their learning.

The quality of classroom management was very good. This management derived from the positive relationships that existed between the students and their teachers. The students were all addressed by their first name, they were treated in a respectful and supportive manner, and they
interacted with their teachers and their fellow students in a respectful and well-disciplined manner.

The atmosphere in the classrooms and laboratories that were visited was one of industry, where the students were actively engaged in their learning. The rooms were appealing, and the laboratories gave the definite impression of being scientific learning spaces. It was notable that the students’ efforts were consistently affirmed, and that their teachers led the learning with enthusiasm and also with sensitivity for the students’ needs.

Interactions between the inspector and the students, observation of the students at work and observation of their interactions with their teachers showed that the students were successful in their learning in the topics under study. In all lessons, the students were engaged and participative in their learning. They demonstrated very good laboratory skills when they were performing experimental work. In answering questions posed by their teachers, they showed that they had gained knowledge and understanding of the topics under study.

**ASSESSMENT**

There are appropriate arrangements in place in this school for the regular assessment of students’ progress and for reporting on this periodically to parents.

The science department and the chemistry department have developed the practice of awarding marks for the completion of experimental work. These marks are then incorporated into the end-of-term examinations. Discussion with the staff showed that the next step in developing this practice is to consider and to implement types of assessment that will give credit for the skills that students learn and demonstrate during their experimental work. For example, the teachers could select a number of groups of students who would be assessed, while performing experimental work, on some of the following areas: the quality of their hypotheses, the manipulative skills they demonstrate, the accuracy of their observations, how well they work together and the quality of their report.

Samples of students’ work were viewed during the inspection, and these showed that there was good progression in the students’ learning. The amount of experimental work that the students had completed was appropriate to their year group and the time of year. In the sample of copybooks that was examined, it was noted that the students had developed the practice of writing up their experimental work in their own words, and this is to be encouraged. Homework is a normal feature of the students’ learning, and it is assigned and corrected regularly. It was noted that some homework tasks included elements of research, and this serves to provide a variety of learning experiences for the students. The students’ copybooks showed evidence of monitoring by their teachers, and there was use of guiding and affirming comments that were aimed at helping the students to improve their learning.

**SUMMARY OF MAIN FINDINGS AND RECOMMENDATIONS**

The following are the main strengths identified in the evaluation:

- The science teachers are dedicated, committed and professional in their work.
- The support structures that enable teaching and learning in Science and in Chemistry are of a very high quality.
- Planning and preparation was of the highest quality.
- Teaching and learning were of a very high standard.
- The students’ learning is well supported by the assessment practices that are in place.

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

- The staff should consider and implement modes of assessment that can be used to evaluate the skills demonstrated by the students when undertaking experimental work.

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

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