

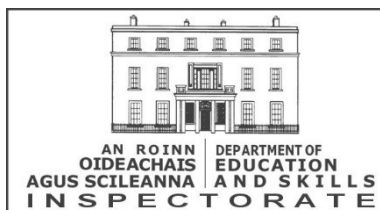
**An Roinn Oideachais agus Scileanna**

**Department of Education and Skills**

**Subject Inspection of Science and Biology  
REPORT**

**Alexandra College  
Milltown, Dublin 6  
Roll number: 60910F**

**Date of inspection: 5 May 2016**



# REPORT ON THE QUALITY OF LEARNING AND TEACHING IN SCIENCE AND BIOLOGY

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## INFORMATION ON THE INSPECTION

<b>Dates of inspection</b>	3 and 5 May 2016
<b>Inspection activities undertaken</b> <ul style="list-style-type: none"><li>• Review of relevant documents</li><li>• Discussion with teachers</li><li>• Interaction with students</li></ul>	<ul style="list-style-type: none"><li>• Examination of students' work</li><li>• Observation of teaching and learning during two double and four single lessons</li><li>• Feedback to senior management and subject co-ordinator</li></ul>

## MAIN FINDINGS

- The quality of teaching and learning was good or very good during the evaluation; learning was active and, mostly, there was very good variety in the learning experiences.
- There was very good use of information and communications technology (ICT), particularly when used to guide task-based activities and support learner independence.
- Some very good quality assessment practices and very good differentiation that greatly enhanced learning were observed, and these are areas where best practice could be extended.
- Students worked very confidently in collaborative tasks and very well independently, particularly when they were focused on the intended learning.
- There is very good whole-school support for the subjects.
- The quality of lesson planning was generally very good, and subject planning was good overall, but there is scope for development in teachers' use of syllabuses and guidelines in planning for Science and Biology, including Transition Year (TY).

## MAIN RECOMMENDATIONS

- All teachers should make the use of the science and biology syllabuses' learning outcomes, aims and objectives, more evident in their planning, particularly in planning for students' skills development, and they should share these objectives with their students in lessons, whenever appropriate.
- Teachers should agree and implement pedagogical approaches that would further extend the instances of very good practices in the areas of differentiation, assessment of students' work and support for learner independence in engaging with texts noted in this evaluation.
- The science department should develop the TY module plans to include aims, learning outcomes, key skills and plans for the assessment of those outcomes and skills.
- Management should give consideration to reviewing the layout of the laboratories.

## **INTRODUCTION**

Alexandra College is a girls' fee-charging secondary school in Dublin with a current enrolment of 486 students. The school provides the Junior Certificate, a compulsory TY programme and the established Leaving Certificate.

## **TEACHING AND LEARNING**

- The quality of teaching and learning was good or very good during the evaluation.
- Lessons were well planned; there was clarity of purpose for the learners and learning was active. Almost all lessons provided very good variety in the learning experiences; however, in one lesson, this was recommended. Teachers' preparation of supplementary resources was good; these supported lesson structure, task-setting, assessment of learning and teachers' verbal explanations.
- Best practice was observed in lessons when teachers were explicit about the intended learning outcomes, discussed them at the start of the lesson and linked them with the assessment of learning to determine the progress being made. In a few instances, this approach was recommended so that students would focus on what is being achieved in terms of content knowledge and skill development. It is recommended that, when appropriate, teachers display the relevant section of the syllabus, and share its learning outcomes and its aims and objectives sections with their students.
- There was very good use of ICT to support teaching and learning. It was used particularly well in task-based activities when students were guided to use the resource to find information for themselves and to independently present that information in a format of their own choosing. Students used personal devices in lessons and were required to engage with ICT for some homework exercises.
- Students' capacities in digital learning and learner autonomy were generally very good. Students independently access their teacher's resources on the shared learning platform including notes, learning activities and revision exercises. To further support learner autonomy, some of these resources should be adapted slightly to increase the amount of directed activity related to those texts.
- Worksheets were generally used to good effect. Very good practice was seen when the worksheet supported active learning, such as researching and collating data and when they were integrated with all phases of the lesson. It is suggested that the worksheets accompanying student practical work could, at times, place greater emphasis on supporting students in noting the many scientific observations being made and in drawing justified conclusions, and that they could be differentiated in terms of presenting tiered challenges for the learners. The use of worksheets was recommended in TY to structure the learning.
- Class groups were mixed ability, with most students studying higher level and some ordinary level. The use of differentiation in one lesson was exemplary; strategies included: clear and frequently recapitulated learning outcomes, a task-based sequential lesson structure, flexible groupings, well-distributed questions that challenged the range of abilities appropriately, very good teacher circulation to support individuals and frequent learning checks that assessed understanding. The atmosphere and progress being made in this lesson was excellent and the approach merits extension to all lessons.

- Assessment practices varied considerably between teachers and this is an area where greater consistency could be brought to the learners' experiences. In some instances, the use of plenary sessions to support students' self-assessment of their work should be balanced with other forms of assessment. Some very good practice in assessment for learning including formative feedback in lessons and on students written work as a means of supporting students in making progress in their learning was observed.
- Support for students' literacy was generally very good, particularly when students were enabled to continuously articulate their learning verbally and in writing.
- Classroom atmosphere was generally very good; a positive and affirming environment was created. Students were generally highly focused and attentive. Students worked very confidently in collaborative tasks and very well independently. They demonstrated very good understanding of the concepts in the subjects.

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

- Whole school support and subject provision for the sciences are very good. The subjects have prominence in the school and on the curriculum. Science is core in junior cycle. Biology, Agricultural Science, Physics and Chemistry are provided as options for the Leaving Certificate. Biology has a high uptake. Science features in the TY as a year-long inter-disciplinary module and as part of a cross-curricular module in Food Science. Timetabling for the subjects is very good.
- Participation in co-curricular science experiences and competitions is encouraged.
- Four large and very well resourced laboratories, located in one building, accommodate all lessons. The building includes a dedicated ICT area to support teaching and learning. The learning environment is very well enhanced with posters and student work.
- The laboratories have a dual layout including a practical-work area, with islands enabling good circulation during students' practical work, and a more traditional tiered-seating area for teacher instruction. Senior management should consider restructuring the laboratories so that the entire layout is in islands. This would better facilitate modern approaches to teaching and learning and better integration of student practical work.
- Recent whole-school professional development included training in ICT for teaching and learning. Individual science teachers' professional development has been limited in recent years.

#### **PLANNING AND PREPARATION**

- The science department plan includes useful elements such as a one-page curricular plan for Science outlining topics to be covered term by term and a more detailed curricular plan for Biology that integrates planned learning with methodologies and resources. The shared plans enable common tests to be administered at Christmas and summer.
- It is recommended that the science department develops a plan for students' skills development in Science throughout the three years of junior cycle, matching it with the skills objectives and coursework. This would allow teachers to also assess and report on their students' progress in developing science process skills at key times.
- The module plans for TY Science include interesting and varied topics and student practical work. The plans should be developed to include aims, learning outcomes,

methodologies and assessment procedures to determine progress in achieving those outcomes.

- Collaborative subject planning is greatly supported by weekly department meetings and the work of the subject co-ordinator. Minutes revealed very good planning on organisational issues, and increasing focus on discussing pedagogical approaches; for example, literacy and numeracy. It is recommended that collaborative discussion and evaluation of science pedagogy continue to develop and be given even greater emphasis, as some very good individual practices and resources that merit extension were observed during the evaluation.

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The draft findings and recommendations arising out of this evaluation were discussed with the principal, deputy principal and subject co-ordinator 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.