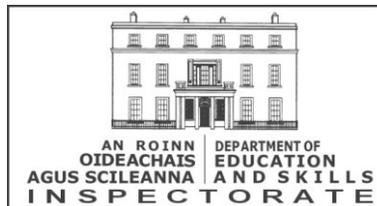


An Roinn Oideachais agus Scileanna
Department of Education and Skills

Subject Inspection of Science and Biology
REPORT

St Andrew's College
Boooterstown Avenue, Co. Dublin
Roll number: 60650F

Date of inspection: 8 March 2016



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

INFORMATION ON THE INSPECTION

Dates of inspection	7 and 8 March 2016
Inspection activities undertaken <ul style="list-style-type: none">• Review of relevant documents• Discussion with teachers• Interaction with students• Examination of students' work	<ul style="list-style-type: none">• Observation of teaching and learning during eleven class periods (three double and five single lessons)• Feedback to senior management and teachers

MAIN FINDINGS

- The quality of teaching and learning observed was good overall.
- Teachers were well prepared for lessons and used very well-designed supplementary resources that supported learning.
- The best lessons were firmly student-centred and active, and verbal participation was required throughout; but there is scope for the extension of this approach.
- Some very good investigative practical work was observed.
- Good quality assessment practices were observed in the monitoring of students' performance in tests and laboratory reports but the assessment of homework varied.
- There is good whole-school support for the subjects evaluated and participation in co-curricular investigations and events is strongly supported.
- There was evidence of good subject department planning, collaboration and subject plans.

MAIN RECOMMENDATIONS

- Teachers should continue, through subject department meetings, to agree pedagogical approaches that would bring greater consistency to the learners' experiences and further extend the good practices noted herein, particularly in standardising student-centred lessons, investigative approaches to practical work and the correction of homework.
- Management should review the layout of some of the laboratories.
- The science department should extend the subject plan to include a plan for students' skills development.

INTRODUCTION

St Andrew's College is a co-educational fee-charging secondary school in County Dublin with a current enrolment of 981 students. The school provides the Junior Certificate, a compulsory Transition Year (TY) programme and the established Leaving Certificate.

TEACHING AND LEARNING

- The quality of teaching and learning observed was good overall. There were elements of good practice in all lessons observed, and the range was from very good to instances when there was scope for development.
- Classroom atmosphere and management were generally very good; teachers provided a positive affirming and well-disciplined environment for learning to take place.
- Teachers' preparation of supplementary resources was very good. Resources, including visual imagery and scientific apparatus, were introduced to support verbal explanations. Well-designed worksheets and presentations supported students in identifying strengths and weaknesses in their own learning, enabling them to make improvements.
- The best lessons were firmly student-centred and active participation was required throughout. In these lessons, the teachers challenged students to express their understanding verbally through the use of differentiated questions and the setting of tasks that required collaboration. This enabled students to use the new scientific terms and to explain scientific phenomena in a variety of ways through continual communication.
- The teachers frequently sought examples and justification of answers from students, further extending the dialogue. Learning in these lessons was dynamic and all students were active, motivated and productively challenged throughout. Intended learning was well-developed and firmly consolidated. This approach should be extended across the school as, in a few instances, individuals remained passive and did not communicate what they had learned.
- In most lessons, teacher circulation was very effective, student work was closely monitored and teachers provided differentiated instruction where necessary. In a few instances, there was scope for development in teacher circulation.
- Teachers were knowledgeable and confident in their instruction. Teachers successfully tapped into students' curiosity for the subjects.
- Many students demonstrated very high motivation for learning including independence in note-making. At times, however, student engagement could have been more focused on the actual learning that was intended. It was suggested to teachers to share the syllabus objectives and learning intentions with students in order to be explicit about what it is they should be able to do by the end of the lesson.
- Teaching and learning supported the development of literacy and numeracy. Well-selected keywords were prominent and, at times, focus was placed on calculations and spellings. Literacy was especially well supported in lessons where there was purposeful student communication.
- In lessons focused on examination preparation, teachers provided very good advice to students in supporting their individual examination performance.

- The quality of the learning experiences in one of the observed practical lessons was very good due to the investigative approach taken. The teacher purposefully involved students in designing the procedure and selecting variables, and facilitated their independence in recording and collating the results. Students performed excellently in this practical lesson.
- Good quality assessment practice was observed in the application and monitoring of tests given in the subjects, usually after each topic. The tests had been rigorously corrected by teachers with a clear marking scheme.
- Students' laboratory reports were generally very well-composed and were effectively assessed by teachers with focused feedback intended to improve students' report writing. In a few instances, this required development. Students' understanding of and ability to draw justified conclusions were mostly good.
- Observed homework practices varied. Students had completed a good amount of written homework. Teachers' assessment of homework was unclear at times. Collection of homework for individual correction and feedback merits further development, especially as settings are mixed-ability. At times, there was scope to diversify homework and to extend it to application, research and problem-solving.

SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT

- Curricular provision and timetabling arrangements are good. Science is a core subject for junior cycle. Leaving Certificate Biology has a very high uptake.
- The senior-cycle sciences, including Physics and Chemistry, as well as Biology, are supported by the eight-week modules in TY and their prominence in the option choice for Leaving Certificate.
- Most lessons take place in teachers' assigned laboratories. Management has endeavoured to maximise laboratory access.
- All six laboratories are conveniently located in one area. Laboratory work is supported with a laboratory assistant. The laboratories are very well resourced.
- Classrooms and laboratories were fitted with very good information and communications technology (ICT) facilities and most teachers made very good use of these. Electronic displays and notice boards are effectively used to promote the sciences and present interesting facts and events.
- Many laboratories have island-layout enabling teachers and students to face each other during practical work. Senior management should consider putting a plan in place for the refurbishment of those laboratories that do not currently have this layout. Restructuring would better facilitate teachers' assessment of students' performance in laboratory work.
- Individual teachers' professional development and whole-school professional development events strongly support teaching and learning. A good record of the wide range of these is maintained in the science plan.
- Students' participation in co-curricular science experiences and competitions is strongly encouraged and facilitated.

PLANNING AND PREPARATION

- The quality of planning and preparation was good overall.
- Teachers made good use of the ICT facilities to develop, display and share resources for lessons. It is suggested that teachers further extend the practice of sharing resources as some very good supplementary resources were observed.
- Collaboration among science teachers was good and is developing well. Collaboration is being greatly supported by subject co-ordinators and the provision for formal, structured subject department meetings. Meeting minutes revealed that greater focus is being placed on discussing pedagogical approaches, including literacy, numeracy and assessment strategies.
- A very good science department plan has been developed. The plan includes useful elements such as 'scope and sequence' documents, plans for common assessments and agreed literacy and numeracy strategies for the subjects. The science department should develop a 'scope and sequence' plan for students' skills development, similar to the current one-page plan for the topics, matching it with the skills objectives listed in the syllabuses.
- It is good that the science department has developed a homework policy and an assessment policy based on the whole-school policies.
- Good module plans for TY Biology have been developed. These could be consolidated into a single plan maintaining a focus on investigations and project work.

The draft findings and recommendations arising out of this evaluation were discussed with the principal, deputy principals and subject teachers at the conclusion of the evaluation. The board of management of the school 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 St. Andrew's College welcomes this report and feels that it is a true reflection of the teaching and learning in Biology and Science in the school.

The Board of the College is pleased that the report reflects the positive quality of teaching and learning and the commitment of the teachers to their work in delivering student centred lessons.

The Board is pleased that the support for co-curricular investigations and events was noted.

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

Teachers should continue, through subject department meetings, to agree pedagogical approaches that would bring greater consistency to the learners' experiences and further extend the good practices noted therein, particularly in standardising student-centred lessons, investigative approaches to practical work and the correction of homework.

1. Teachers will continue to develop methods that allow for student centred learning keeping in mind investigative and explorative methods to enhance the learning objectives.
2. The science specific homework policy will be reviewed and updated where appropriate to facilitate both formative and summative assessment.
3. In line with the recommendations of the Department, more emphasis will be placed on discussing best practice methods at subject department meetings.

Management should review the layout of some of the laboratories.

1. The College is currently reviewing all Science facilities and as part of this will consider the layout of some of the laboratories.

The science department should extend the subject plan to include a plan for students' skills development.

1. A section on student skills development will be included in the plans for the new Junior Cycle.