An Roinn Oideachais agus Scileanna

Department of Education and Skills

Subject Inspection of Science and Physics
REPORT

Arklow Community College
Arklow, County Wicklow
Roll number: 70740M

Date of inspection: 17 May 2011
REPORT
ON
THE QUALITY OF LEARNING AND TEACHING IN SCIENCE AND PHYSICS

INFORMATION ON THE INSPECTION

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<th>Date(s) of inspection</th>
<th>17 May 2011</th>
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<td><strong>Inspection activities undertaken</strong></td>
<td><strong>• Observation of teaching and learning during four class periods</strong></td>
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<td>• Review of relevant documents</td>
<td>• Examination of students’ work</td>
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<td>• Discussion with principal, deputy principal and teachers</td>
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MAIN FINDINGS

• The majority of lessons were well structured and learning outcomes were shared with students.
• A positive and supportive learning environment enhanced student motivation, challenge and participation.
• Teaching methods, including the use of information and communication technology (ICT) in some cases, were appropriate to students’ abilities, needs and interests.
• Assessment for learning (AfL) strategies had a positive impact on student learning.
• Science is provided as a core subject at junior cycle. Physics and Biology are offered at senior cycle together with Agriculture/Horticulture and elective Science in the Leaving Certificate Applied (LCA) programme.
• Planning for Science and Physics is very good overall. Comprehensive and collaborative plans and schemes of work are available; however, some development of these plans is necessary.

MAIN RECOMMENDATIONS

• Students should be afforded the opportunity to participate more fully in some lessons.
• Appropriate methodologies, including use of ICT should be used more extensively in student learning.
• Support for students in making an informed choice regarding Physics at senior cycle should be enhanced.
• The practice of timetabling Science twice on the same day or splitting a double period across a break should be avoided.
INTRODUCTION
Arklow Community College is a vocational school under the auspices of Co. Wicklow Vocational Education Committee (VEC) with an enrolment of 358 students. The college offers a range of programmes including the Junior Certificate School Programme (JCSP), the LCA programme and is involved in the Delivering Equality of Opportunity in Schools (DEIS) initiative. The college does not currently offer the Transition Year programme. The board of management was given an opportunity to comment in writing on the findings and recommendations of the inspection, and the response of the board will be found in the appendix to this report.

TEACHING AND LEARNING

- The majority of lessons were well structured. In many cases lesson objectives were shared with students at the outset, a good practice that should be extended.
- Student learning was enhanced through the very good atmosphere, excellent rapport, high expectations and affirmative environment evident in all lessons. The physical appearance of the classroom environment supported the student learning experience.
- Affirmation of student effort was a positive feature of many lessons. Overall, very good efforts were made to get students involved in lessons. However, students should be afforded the opportunity to participate more fully in some lessons. The links established with students’ experiences and with historical aspects of the subject were very good.
- A good level of individual and group support for students helped to develop and consolidate students’ literacy and numeracy skills. The focus on target setting and on the development of subject specific terminology also supported weaker students and helped to ensure that basic key skills including problem-solving and analytical skills were developed.
- Teachers made exemplary use of ICT in many lessons through the use of well designed revision presentations and carefully chosen photographs and videos. This good practice should be extended.
- Methodologies frequently involved students in active learning. Examples of good practice included the use of the board to highlight and explain key words, concepts and ideas. An appropriate pace, links forged with prior learning and clarity of lesson delivery all supported students in their learning and in their literacy and numeracy skills development.
- There was effective use of appropriate and challenging questioning in all lessons observed. Students responded confidently to questions on their work.
- AFL strategies were well employed in the majority of lessons and are having a beneficial impact on student learning through positive comments and annotation of students’ copybooks. In an effort to further improve the quality of students’ written practical records, students should be assigned a portion of the marks allocated to school examinations for the satisfactory completion of assigned practical activities.
- Assessment was integrated into student learning through appropriate questioning and through classroom assignments. There was evidence to confirm that class testing is a regular feature of assessment. Students were appropriately prepared for examinations in some lessons. Key skills consolidated in revision lessons included graph drawing, problem solving and writing skills.
- Examination results are analysed and academic student achievement is monitored. Trends in examination results and in the uptake of higher level for Science and Physics should form part of science development planning in future years.
SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT

- Science is provided as a core subject at junior cycle. Two streams in each year group follow the JCSP. Physics and Biology are offered at senior cycle together with Agriculture/Horticulture and elective Science in LCA. Levels of support for students in making an informed choice regarding Physics at senior cycle should be enhanced to help ensure that students who choose the subject have acquired appropriate mathematical skills.
- Time allocation to the range of science subjects is appropriate. However, the practice of timetabling Science twice on the same day or splitting a double period across a break should be avoided.
- The level of support for students with special educational needs is good. Teachers are aware of students’ individual needs and there is good dissemination of information regarding students with special educational needs.
- The school’s two laboratories and preparation area are well organised. However, the college should ensure that there is sufficient laboratory equipment to enable students to get ‘hands-on’ practical experience while carrying out mandatory experiments in Physics.
- ICT facilities have been enhanced since a previous science inspection in 2004. The school is currently part of a VEC strategy to improve ICT facilities.
- The profile of Science is promoted in many ways including through the school website and through photographs, posters and projects on display in the college. The commitment of teachers to encouraging students to partake in a range of science-related co-curricular and extra-curricular activities is exemplary.
- Relevant continuing professional development (CPD) courses are supported by senior management for all science teachers as evidenced in school planning documentation. Teachers in the science department share expertise among themselves and with other schools and support new student teachers in their work as needed.
- All classes sit formal examinations at Christmas and summer while third and sixth-year students sit pre-examinations in February. A parent-teacher meeting is held annually for each year group and reports are sent to parents on two occasions during the year.

PLANNING AND PREPARATION

- Planning for Science and Physics is very good overall. Comprehensive and collaborate plans and schemes of work have been developed. However, subject planning should be developed by setting long-term targets for the development of science education in the school and by developing the planning of senior science subjects in a similar way. Common schemes of work should be developed with integrated syllabus links and references made to methodologies, resources, skills development and assessment strategies.
- Science department planning meetings are convened regularly and minutes reveal the wide range of relevant topics discussed. Good planning strategies have ensured that the majority of recommendations made in a previous science inspection have been implemented. The voluntary role of coordinator of Science is carried out very effectively.
- There was very effective individual teacher planning in evidence in advance of lessons observed. Lesson resources including worksheets and practical and ICT equipment were set up and were ready to use. Teachers maintain good records of students’ completion of homework, assessments and attendance.
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.

*Published January 2012*
Appendix

School response to the report

Submitted by the Board of Management

Area 1: Observations on the content of the inspection report

The opportunities for the more extensive use of ICT as a teaching methodology in the school have been greatly enhanced, even since the inspection, given that over the summer months (2011) all rooms in the school have been equipped with quality fixed projectors. ICT facilities will continue to improve over the coming months as Co Wicklow VEC’s strategy to improve ICT facilities is rolled out.

The practice of timetabling Science twice in the same day will be discontinued.

Further support will be given to students in making a choice as to whether or not to do Physics for Leaving Certificate. This will include information around the advisability of having an aptitude for mathematics in choosing Physics.