

An Roinn Oideachais agus Scileanna

Department of Education and Skills

**Subject Inspection of Materials Technology (Wood) and
Construction Studies
REPORT**

**Fingal Community College
Swords, County Dublin
Roll number: 70121H**

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**AN ROINN | DEPARTMENT
OIDEACHAIS | OF EDUCATION
AGUS SCILEANNA | AND SKILLS**

REPORT
ON
THE QUALITY OF LEARNING AND TEACHING IN MATERIALS TECHNOLOGY
(WOOD) AND CONSTRUCTION STUDIES

SUBJECT INSPECTION REPORT

This report has been written following a subject inspection in Fingal Community College. It presents the findings of an evaluation of the quality of teaching and learning in Materials Technology (Wood) and Construction Studies 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 the teacher, examined students' work, and had discussions with the teacher. The inspector reviewed school planning documentation and the teacher's written preparation. Following the evaluation visit, the inspector provided oral feedback on the outcomes of the evaluation to the principal. 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

Fingal Community College currently caters for 550 students, 290 males and 260 females. First year students are offered Materials Technology Wood (MTW) as one of the optional subjects studied for the Junior Certificate examination. Prior to enrolment in first year, students and parents are invited to attend an open night where subject choices are presented and explained by senior management, the guidance counsellor and the year head. A booklet providing information on all the optional subjects offered by the school is also made available at this time. At present, optional subject choices are made before entry to first year. All reasonable efforts are made to accommodate student preferences. Students are permitted to change their optional subjects up to the end of September in first year. School management is currently exploring the possibility of providing students with an opportunity to sample each of the optional subjects at the beginning of first year. It is recommended that this initiative be adopted as such an experience would provide students and parents with a more robust support for student decision-making.

In the senior cycle the school offers the Leaving Certificate Applied programme (LCA) in addition to the established Leaving Certificate. Construction Studies (CS) is one of the optional subjects offered for the Leaving Certificate but there is no equivalent subject offered within the LCA programme. Third year students choose their optional subjects for the senior cycle from an open menu of the optional subjects provided by the school. Subject bands are then developed based on student choice, which is good practice. Students are well supported during this important decision-making time by the guidance counsellor through guidance classes and individual meetings with each student. Parents are invited to attend an information evening where the programmes and subjects on offer are explained. These arrangements form a good model for the making of informed choices.

The time allocated to MTW and CS, four periods per week in junior cycle and five periods per week in senior cycle, is sufficient for the completion of the respective syllabuses. Classes are well distributed across the week and the provision of double and single class periods caters well for practical work, project work, drawing and theory.

All classes in MTW and CS are of mixed ability and the work being undertaken by students, in the lessons visited, was appropriately differentiated to allow all students to succeed at a level appropriate to their abilities. Access to both higher and ordinary level is accommodated within these class groups.

There is open access to both the subjects and the uptake amongst male students is very high. It was noted during the evaluation that while students of both genders are almost equally represented in the school the number of females choosing the subjects is very low. The junior cycle MTW classes visited had very few female students while the fifth and sixth year CS classes were composed exclusively of males. The current arrangement of selecting optional subjects before entry to the school may be contributing to this stereotypical uptake of the subjects along gender lines. In order to address this gender imbalance it is recommended that school management and the subject department explore ways to encourage more females to study the subjects. The optional subject information booklet, for example, should be reviewed and amended to include input from female students currently studying the subjects or from local businesswomen involved in the construction industry. A survey of all the female students in the school to determine their attitude to the subjects could provide useful insights.

Information and communications technology (ICT) resources are good with a broadband-enabled laptop and data projector at the teacher's desk. Students also have access to laptop computers when required. These resources were used extensively in teaching and learning during the evaluation.

The subjects are taught in a bright, well equipped room. The room is decorated with a wide variety of colourful student-produced work and commercially purchased wall charts. This provides a stimulating learning environment for students and is commended. There are many examples of student project work on display and it is recommended that efforts be made to display this work in a more organised manner. The proper display of these projects would help to stimulate students, would promote the work of the department and would create a focus of interest in the room. The subject department has diligently kept photographs of projects produced in the past. The provision of more noticeboard space outside the classroom would facilitate the proper displaying of these photographs.

The subject department is well resourced with materials, machines, portable power tools and hand tools. Additional resources to support teaching and learning may be accessed when required following consultation with the principal. This arrangement is reported to work effectively in the school.

The teacher of MTW and CS has attended each session of the programme of continuing professional development (CPD) made available through the Technology Subjects Support Service (T4). During the past year there has also been whole-school inservice related to raising academic standards, mixed-ability teaching and assessment for learning (AfL). Management is commended for supporting, encouraging and facilitating the in-career development of the teaching team.

PLANNING AND PREPARATION

Subject department planning meetings are facilitated once a term. Minutes are kept of these formal meetings and these minutes are shared with senior management. There is a well developed practice within the school whereby all the teachers of the technology subjects meet informally throughout the year to exchange ideas and share experiences while discussing curricular issues of common concern. These arrangements contribute positively to the maintenance of strong links and good collaboration between subject departments.

Lesson notes were presented for all the lessons evaluated. These detailed clear aims and objectives, teaching methodologies and the desired outcomes for each lesson. A wide range of resources had been prepared for each lesson including worksheets, models and presentations with the data projector. This work is commended.

The department's planning documentation was not made available to the inspector during the evaluation. The subject plan is an important document which should identify the aims and objectives of the MTW and CS courses, should contain detailed schemes of work and should give details on access to the subjects and the provision of the subjects in the school. In relation to planning in general, best practice involves the development of programmes of work for each year group. The work for the year should be divided into manageable portions. This allows accurate tracking of progress. Topics should be analysed in terms of proposed learning outcomes for the students with details given on how the achievement of these learning outcomes could be assessed. Successful teaching methodologies that encourage active learning should be included as well as details on resources available for each topic. Further information on what should be included in a subject department plan is available on the School Development Planning Initiative (SDPI) website (www.sdpi.ie/Subject_Department_Planning.html).

A subject-specific word list is being developed as a support to improve literacy levels amongst students. The list presented contains key words with a brief definition of meanings. The current list contains a limited number of words and it is recommended that this good resource be extended to cover a wider range of material.

An extensive audit of health and safety measures in the MTW room was commissioned by County Dublin Vocational Education Committee (CDVEC) in 2007. The health and safety issues pertaining to the equipment in the room were examined. In the report that followed a small number of recommendations were made to reduce risks and hazards. These recommendations should be implemented immediately, in particular, the demarcation of safe operational areas (SOAs) around all machines and the display of more standard warning signage. Furthermore a risk and hazards assessment, using this document as a template, should be carried out annually by the subject department.

TEACHING AND LEARNING

The quality of teaching and learning was very good in all lessons observed in the course of the inspection. Clear learning intentions were shared with the students at the beginning of each lesson and these were revisited at the end of the lessons to assess progress and to reinforce learning. Lessons were delivered in a structured manner. Very good use of global and directed questioning

was used to elicit and to reinforce information from students' prior knowledge and this was then used to progress learning. Students were given adequate time to reflect before answering and were effectively affirmed on the quality of their answers. The repetition and further explanation by the teacher of correct answers offered by students ensured that learning was consolidated.

During a practical junior cycle lesson observed, effective demonstration techniques were employed in the teaching. Demonstrations are extremely important as they allow the teacher to model the proper execution of woodwork and construction procedures, processes and skills. Demonstrations were generally given to whole-class groups initially and teacher instructions were clear. While students worked on tasks the teacher circulated among them giving further attention to small groups and individuals as the need arose. This method follows best practice and ensures that targeted support is being delivered.

Group work was used to good effect in a senior cycle lesson on plumbing to encourage active participation by all members of the class. Group work can foster peer learning and can form a beneficial support for students as they express and discuss ideas more freely. A series of four worksheets on various aspects of domestic water supply were distributed to each group which were then completed collaboratively. The findings from each group were then shared with the whole class and this resulted in a lively and well managed debate that increased understanding.

ICT resources were used extensively in all lessons observed and in a variety of ways. In a senior cycle CS theory class the data projector was used to present concise information, bulleted notes, sketches and photographs. The teacher used *SolidWorks* software to assist a group of junior cycle students in their visualisation of various parts of a model crane which they were producing. Sixth year CS students were using the same computer aided design (CAD) software to produce working drawings of their Leaving Certificate CS projects. ICT resources were used effectively to focus students' attention and to support their learning.

At the time of the inspection the sixth year students were nearing the completion of project work for the Leaving Certificate examination. The teacher had expertly guided students through the design and make process and there was evidence of good design principles being followed. Scaled models of many of the projects were produced by the individual students at the design stage to aid their visualization of the final project. The diligence of the teacher in facilitating, managing and monitoring this complex task is commended. It was noted that all the current sixth year students' project work observed was from the woodcraft area. In order to broaden students' experiences of the subject it is recommended that a wider variety of projects be explored with students. Among these, architectural heritage projects and scale models would provide students with a valuable area of study within the subject.

The terminology associated with the subjects was well used and emphasised in the teaching of the lessons observed. This good practice enhances both teaching and learning. As a result of this constant assimilation of subject-specific terms the students were confidently able to communicate with their peers, the teacher and the inspector using appropriate MTW and CS terminology.

Textbooks are prescribed for the subjects but were not overly relied upon. Texts are used as a resource for students in the completion of class and homework tasks.

Teacher movement around the classroom during all the lessons observed was smooth, effective and unobtrusive. The classroom atmosphere at all times was calm and positive and this complemented the very good rapport evident between the students and the teacher. All

interactions were friendly, positive and mutually respectful with classroom discipline being sensitively maintained at all times.

ASSESSMENT

Examinations are held at Christmas and at the end of the school year for first, second and fifth year students. Junior Certificate and Leaving Certificate students sit Christmas examinations and have 'mock' examinations in the spring. These examinations take the form of a theory paper with the practical aspect of the subjects assessed by means of classroom projects. The performance of students in each of the two elements is recorded separately. This is good practice as it facilitates the clear identification of areas of strength and areas in need of development. The trends in students' achievement are then used to inform teaching strategies and to address the needs of individual learners. Reports are sent home to parents after each assessment. The parents of students in each year group are invited to attend one parent-teacher meeting during the year. These arrangements are satisfactory.

A sample of students' hardback note copybooks was examined during the evaluation. The quality of student note-taking and sketching as shown in these copybooks varied considerably. It is recommended that these copybooks be monitored regularly. Written feedback included should be both affirming and developmental in nature, indicating the quality of work and how it might be improved.

There is continual assessment of students' project work in MTW and CS with end-of-topic tests used to revise theory work. As is good practice the outcomes of continual assessment are used to maintain ongoing feedback to students and to reinforce formative assessment practices in lessons. Student attendance was checked and recorded in all classes visited. Homework is allocated, collected and corrected regularly with the performance of students recorded systematically by the teacher. These records allow accurate information on student effort and progress to be communicated to parents in school reports and at parent-teacher meetings.

SUMMARY OF MAIN FINDINGS AND RECOMMENDATIONS

The following are the main strengths identified in the evaluation:

- Time allocation for the subjects at junior cycle and senior cycle is good with classes well distributed across the week.
- The subject department is well resourced.
- CPD opportunities for teaching the subjects are well supported by management and have been well attended.
- Planning meetings are held regularly and minutes of these meetings are recorded and retained.
- In the lessons observed, ICT was very well integrated into the teaching and learning of the subjects.
- In all lessons observed the teaching and learning was of a high quality.
- In the lessons visited, group work was used to good effect.
- The rapport between students and the teacher was found to be very good.
- There are good procedures in place for monitoring student progress.

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

- Every effort should be made to provide students with an opportunity to sample each of the optional subjects before they make their choice in first year.
- Ways to encourage more female participation in the subjects should be explored.
- The recommendations made in the CDVEC health and safety audit report (2007) should be implemented immediately.
- Leaving Certificate CS students should be encouraged to attempt a broader range of projects than is the case at present. Modelling building details and architectural heritage projects would provide an appropriate additional area of study.
- Written feedback should be provided to students on their class work in an effort to improve the quality of student note-taking and sketching.

A post-evaluation meeting was held with the principal at the conclusion of the evaluation when the draft findings and recommendations of the evaluation were presented and discussed.