

An Roinn Oideachais agus Scileanna

Department of Education and Skills

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

**Coláiste Choilm
Swords, Co. Dublin
Roll number: 60383I**

Date of inspection: 12 November 2010



**A N R O I N N | D E P A R T M E N T O F
O I D E A C H A I S | E D U C A T I O N
A G U S S C I L E A N N A | A N D S K I L L S**

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 Coláiste Choilm. 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 teachers, examined students' work, and had discussions with the teachers. The inspector reviewed school planning documentation and the teachers' written preparation. Following the evaluation visit, the inspector provided oral feedback on the outcomes of the evaluation to the principal and the subject teachers. The board of management of the school was given an opportunity to comment on the findings and recommendations of the report; the board chose to accept the report without response.

SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT

Coláiste Choilm caters for 610 male students. It offers Materials Technology Wood (MTW) as an optional subject for the junior-cycle programme. First-year students are given the opportunity to experience all option subjects during a sampling period which lasts from the start of the school year until the October mid-term break. Students choose their subjects from set bands. The subject is very popular and is generally oversubscribed. At the time of choice, parents are invited to attend an information evening where they are addressed by the principal, deputy principal and career guidance counsellor on all aspects of the choices available. These arrangements form a good model for the making of informed choices.

The optional Transition Year (TY) contains a year-long module on Construction Studies (CS). The focus of this module is the development of woodworking skills and an introduction to parametric, computer aided drawing using the *SolidWorks* software. It is a well structured programme and provides good continuity between the junior cycle and the senior cycle.

Construction Studies is offered as an optional subject in the established Leaving Certificate (LC). Students preparing to enter fifth year are offered an open choice of optional subjects, with bands then prepared to accommodate these choices. Information and advice for students and their parents are provided by subject teachers, the guidance counsellor and the senior management team.

Two adjoining specialist classrooms are available for the teaching of the subjects. Both of these rooms provide stimulating learning environments. Tool storage is well organised and some examples of students' project work is displayed. Information and communications technology

(ICT) facilities are good with the teachers of MTW and CS each provided with laptop computers. These are used in conjunction with data projectors to help present lessons. A television, DVD player and desktop computer are also supplied to each room. A notice board, outside one of the classrooms, displays photographs of students' project work and a display case nearby contains examples of old woodworking tools. Such displays help to raise awareness of the subjects amongst the wider student cohort and are highly commended.

Time allocation for the subjects is good across all year groups and programmes, and the provision of double and single periods reflects good practice. All classes are of mixed ability and students sit certificate examinations at the level best suited to their abilities.

Both teachers have availed of the continuing professional development (CPD) made available through the Technology Subject Support Services (t4). Whole school in-service sessions relating to Positive Discipline classroom management and Assessment for Learning (AfL) have also been provided. The commitment of senior management and the teaching staff to continuing professional development deserves acknowledgement.

PLANNING AND PREPARATION

A subject co-ordinator has been appointed and this role is rotated among the subject teachers. Management facilitates subject department planning meetings three times per year. Minutes of these formal meetings are retained and form a record of the work being done by the department as well as providing details on the future plans for the development of the subjects. Formal meetings are supplemented by regular informal meetings and this reflects the strong collaborative approach adopted by the subject teachers.

Subject department planning is very well progressed. Separate planning folders have been developed for MTW, CS and the TY module. These folders contain comprehensive details on the organisation, structure and delivery of the subjects as well as detailed schemes of work for each year group. The MTW and TY schemes are particularly well developed and give details on the topic to be covered, student learning outcomes, teaching methodologies and assessment. These planning folders are supplemented by several resource folders. It is evident that teachers frequently share resources and this is commendable. As a next step to further improve these very good subject plans, it is suggested that a closer link be developed between the resource folders and the schemes of work. By directly referencing available resources for topics, within each scheme of work, the subject teachers would catalogue what has already been developed and would also identify areas in need of further work.

Developing the students' ability to modify designs or to produce individual solutions to a set design problem is a core element of the MTW syllabus. These skills need to be fostered from an early stage in the junior-cycle programme. Having examined the range of first year and second-year project work proposed in the plans, it is recommended that a stronger emphasis be placed on the design process. As often as is practicable, the design of projects undertaken should have a large input from students. Students should also be encouraged to produce a project portfolio to accompany their larger projects. This design brief should follow the criteria laid down by the State Examinations Commission for the Junior Certificate project brief.

There is good planning for safety in both classrooms. Safe operational areas (SOAs) are clearly demarcated around machines. Personal protection equipment (PPE) was available for the use of teacher and students, as required, when using particular machines. The safety rules for the

workshops and a range of standard warning signage are prominently displayed. It is suggested that the subject department draft machine-specific safe-use rules which could then be laminated and displayed adjacent to each machine. This would supplement the existing arrangements. A safety document has been drawn up which identifies risks, hazards and control measures put in place. As is good practice, a safety audit is carried out annually by the subject teachers the results of which are recorded on well designed checklists. It is recommended that these checklists be signed and dated. The Health and Safety Authority (HSA) has recently distributed *Guidelines on Managing Safety and Health in Post-Primary Schools*. This document should form a useful resource for the whole school and particularly for the practical subject departments.

The level of short-term planning and preparation for lessons observed was very good. Classroom resources had been prepared in advance thus ensuring that the lessons progressed at a suitable pace. Examples of these resources included worksheets, ICT presentations, building materials and models.

Senior management analyses students' outcomes in the certificate examinations every year and compares them to the national norms. The majority of students follow the higher-level course and attainment at this level is good.

TEACHING AND LEARNING

Four lessons were observed during the course of the evaluation, two in junior cycle and two in senior cycle. All lessons had clear learning intentions which were shared orally with the students. This strategy provides a focus for the lesson and ensures that students are aware of the teacher's expectations of them. To further build on this good practice, the proposed learning outcomes could be written on the chalkboard to be referred to during and at the end of the lesson. This would better facilitate a recap of the key points of the lesson thereby reinforcing student learning.

Good classroom routines were in evidence during all lessons observed. Little time was wasted during the setting up and clearing away of tools and work pieces in the workshop. Such routines are commended as they promote responsibility amongst students for their own learning environment.

At the time of the inspection, a number of class groups were engaged in project work associated with the certificate examinations. Teachers were expertly guiding students through the design and make process towards the completion of a variety of projects. Time management charts for each of these class groups were on display, enabling the teachers to track the progress of individual students through set stages of the work. The teachers' organisation, management and monitoring of this complex process are commended.

It was noted that all the current LC 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 a valuable area of study within the subject.

Students' learning was effectively scaffolded when teachers demonstrated the proper execution of woodworking skills in an incremental way to whole class groups, to smaller groups and to individual students. Teachers used and emphasised the terminology associated with MTW and CS during these demonstrations. Students were then encouraged to communicate with the teacher and their peers using the correct terminology. Best health and safety practices were a central theme of all demonstrations and the theoretical element of the subject was discussed and revised whenever

the opportunity arose. In some instances, students were invited to participate in the demonstration which helped to create variety and to promote active learning.

In a third-year lesson observed, the teacher had arranged for a fifth-year student to visit the classroom. This student had achieved very well in MTW in the Junior Certificate. The student proceeded to outline the difficulties which he had encountered when completing the project and the write up. This was a very valuable exercise as the students were receiving advice from a member of their peer group.

ICT was used to very good effect and was integrated smoothly into lessons. This was evident in a junior-cycle lesson where animations were used to explore possible joint selections for specific parts of a project. In other lessons, concise notes were presented in bullet format and were often used to initiate class discussions.

Questioning was well used to assess students' understanding of key concepts. The level of questioning ranged from simple recall questions to higher-order questions. In a lesson observed, the teacher initiated a brainstorming session and encouraged students to think for themselves through the skilful use of open-ended questioning. Student responses were affirmed and developed further if necessary. This type of questioning improved the overall understanding of topics and helped to consolidate learning.

The excellent rapport between the students and the teachers encouraged a productive classroom atmosphere. Teacher movement around the classroom ensured that students were on task and engaged in lesson activities. Classroom management was effective and both the teachers and the students demonstrated enthusiasm for the subjects.

ASSESSMENT

All year groups sit Christmas examinations. Third year and sixth-year students have "mock" examinations in the spring whilst all other year groups have summer examinations. Reports are sent home to parents after each set of examinations. Parents of students in each year group are invited to attend one parent-teacher meeting during the year.

There is continuous assessment of students' practical project work in MTW and CS. These assessments are aggregated with the Christmas and summer examinations. Half of the overall marks awarded at these times are allocated for the examination with the other half made up from the continuous assessment mark. This approach is consistent with the assessment modes provided in the respective subject syllabuses and follows good practice. To further clarify this system of assessment it is recommended that the weighting of marks allocated towards practical work, portfolio work and Christmas and summer tests be displayed prominently in the classroom or distributed to the students. This would allow students to more accurately track their progress.

Homework is assigned and monitored regularly by teachers. A strong emphasis is placed on the development of students' sketching techniques. This is commended as the ability to produce good sketches is becoming increasingly important to students studying the technology subjects. It is suggested that, to further improve student work in this area, all sketches should be produced in pencil.

A sample of students' portfolio work was examined during the evaluation. In most instances, appropriate levels of subject material was covered and students' drawings were of a good quality.

This work is regularly monitored and students receive written feedback on their sheets which affirms good work and indicates areas for improvement.

It is recommended that teachers make more use of marking schemes available from the State Examinations Commission website (www.examinations.ie) when correcting student work, particularly work from third-year and sixth-year students. By doing so, they would heighten students' awareness of the workings and weightings of such marking schemes. Regular use of such materials will help to promote self-evaluation amongst students and allow them to critically assess their own work.

SUMMARY OF MAIN FINDINGS AND RECOMMENDATIONS

The following are the main strengths identified in the evaluation:

- Time allocation for the subjects at junior level and senior level is good, with lessons evenly distributed across the week.
- The classrooms available for the teaching and learning of the subjects provide stimulating learning environments for the students.
- The teachers have engaged in extensive CPD.
- There is a strong sense of collaboration within the subject department.
- Subject department planning is well progressed.
- A safety audit is carried out annually and this is supported by detailed health and safety documentation.
- In all lessons observed, the teaching and learning was of a high standard.
- ICT, subject theory and subject terminology were well integrated into all lessons observed.
- Marks awarded to students through continuous assessment are aggregated with Christmas and summer examinations.

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

- Planning for Materials Technology (Wood) should place greater emphasis on the development of the students' ability to work through the design process.
- Greater use should be made of the resources available from the State Examinations Commission website to encourage students to critically assess and self-evaluate their own work.

A post-evaluation meeting was held with the teachers of Materials Technology (Wood) and Construction Studies and with the principal at the conclusion of the evaluation when the draft findings and recommendations of the evaluation were presented and discussed.