

An Roinn Oideachais agus Scileanna

Department of Education and Skills

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

**Coolmine Community School
Clonsilla, Dublin 15
Roll number: 913150**

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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 Coolmine Community School, conducted as part of a whole-school evaluation. 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 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.

SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT

Coolmine Community School offers Materials Technology Wood (MTW) as an optional subject for the junior-cycle programme. During August, before the start of the school year, incoming first-year students attend an orientation day where they are shown around the school and are given information on all the subjects offered. The parents are invited that evening to a meeting where school systems are outlined and subject choice is discussed. A further meeting for parents is held in November when optional subject choice is again on the agenda. These arrangements provide a good model for informing parents and students and easing the anxiety that often accompanies the transfer from primary to post-primary school especially in the case of the first child in a family.

Students are given the opportunity to sample one optional subject from a grouping that comprises Metalwork, Home Economics and Materials Technology (Wood) and study their chosen subject for the full duration of first year. Final decisions on optional subjects to be studied in second and third year, for the Junior Certificate examination, are made by the students in January of first year. Students may choose any of the optional subjects offered and are not restricted to the subjects they have sampled in first year. It is suggested that the possibility of providing students with an experience of each of the optional subjects, before they make their final choices, be explored. Such an opportunity would provide a more robust support for students to make a more informed choice of optional subject.

The current system for students to sample the optional subject of their choice extends throughout the whole of first year. This may result in a student sampling a subject for the whole of first year which he or she does not subsequently study for the Junior Certificate examination. It is suggested that in order to maximise student contact time with the optional subject that they ultimately study for the Junior Certificate that the first year sampling period be reduced.

At senior cycle Construction Studies (CS) is offered as one of the optional subjects on the Leaving Certificate (LC) programme. Students entering senior cycle are given an open choice of all available subjects. Option bands are then developed based on student choice which is good practice. Students are well supported in making subject choices by the subject teachers, the guidance counsellor and senior management. Parents are supported at this time with an information booklet outlining subject information and career opportunities. Parents are also invited to attend an information night on option choices. These good arrangements help students to make informed choices in the selection of their preferred optional subjects.

Junior-cycle MTW is scheduled for three periods per week in first year as part of the system of sampling subjects. In second year and third year the subject is allocated four periods per week. The shorter contact time in first year results in an inadequate overall time allocation for teaching and learning over the junior-cycle years. This contact time is reduced even more for the student who elects to study MTW in second and third year but had not sampled the subject in first year. It is recommended that MTW should be timetabled for an overall allocation equivalent to four periods per week in each of the three years of the junior cycle. Time allocation at senior cycle for CS is very satisfactory. The provision of double and single periods, across all year groups, caters well for practical work, project work drawing and theory.

The number of female students studying MTW and CS in the school is low. The current arrangements for sampling the optional subjects in first year may be encouraging a stereotypical uptake of the subjects along gender lines. It is recommended that school management and the subject department explore ways to encourage more female involvement. It is suggested that all documents and presentations relating to choice of optional subjects should be examined, and amended if necessary, to better promote the subject to female students. Furthermore a survey of the female students in the school to determine their knowledge of, and their attitude to, the subjects would be a useful source of information.

The subjects are taught in two well equipped rooms which are separated by a spacious wood-preparation and machining area. The rooms are decorated with colourful student-produced posters and diagrams on a variety of topics related to MTW. A number of purchased wall charts are also on display and good use has been made of the limited wall space available. Good information and communications technology (ICT) resources are available in both rooms with facilities including a ceiling-mounted data projector, a teacher desktop or laptop computer and access to a shared folder on the school server. The subject department teachers are careful to ensure that tools and equipment are stored in a well organised and tidy manner.

Senior management encourages and facilitates teachers to attend continuing professional development (CPD) activities. All members of the department have attended in-service training provided by the Technology Subject Support Service (T4). An additional course on computer maintenance was also completed by some members of the department. These are positive indicators of management and staff commitment to this important work.

PLANNING AND PREPARATION

The subject department meets formally once per term with these meetings supplemented by frequent informal meetings. The role of subject co-ordinator has traditionally formed part of the promoted post structure of the school. A subject co-ordinator had been appointed in the past but currently the position is vacant. This role is an important one, particularly in a large school. Since

there is no longer a co-ordinator of this department, minutes of meetings are not being recorded. Consideration should be given to the decoupling of the role of subject co-ordinator from the school's promoted post structure with a view to establishing a system whereby the position can be rotated among the teaching team. This practice would in due course provide all the teachers with experience of subject planning and co-ordination.

The subject department plan follows the School Development Planning Initiative (SDPI) template and contains a good body of work. Within this document curricular plans in line with syllabus guidelines have been developed. In order to improve the schemes of work within these plans, it is recommended that each topic included be examined to determine the exact learning outcomes for students from that unit of study. The most appropriate methodologies and strategies to be used to deliver the topic, the resources available and the proposed method of assessment should also be included. Furthermore the breaking of each year group's work, into short time frames would facilitate the accurate tracking by teachers of the progress being made through the programme.

A considerable amount of time has been spent on the development of a draft safety statement for the subject department. This document clearly identifies the risks, hazards and control measures associated with the use of the various hand tools and machines in the workshop. It is recommended that this excellent piece of work be formally adopted with provision made for an annual review. A strong emphasis on safety pervades all activities in the workshop. Standard warning signage is displayed prominently near all machines. To complement this existing good practice it is recommended that safe operational areas (SOAs) be marked around machines with notices displayed which explain the rationale for these areas.

Requests for the purchase of materials, consumable items and small pieces of equipment are made directly to the principal. This arrangement is working effectively in the school.

The members of the CS teaching team have developed a wide range of resources for the teaching of the subject. These resources are available in a shared folder and are used extensively in the planning of lessons. The resources mostly take the form of data projector presentations. This collaborative approach to the preparation of teaching resources is a model of best practice.

When planning for the future of the department it is recommended that consideration be given to developing a means of displaying student work in a more organised manner. A permanent display of work produced by the department can provide a sense of fulfilment and achievement for those students whose work is displayed. Furthermore such a display can help to promote the work of the department.

TEACHING AND LEARNING

The quality of teaching and learning in all lessons observed in the course of the inspection was very good. The desired learning outcomes were shared with the students at the beginning of the lessons and were suitable for the stage of the programme being delivered. In each case the work of the lesson began with a brief, focussed revision of work done previously. The lessons were then developed in a coherent and well structured manner. The pace of the lessons was appropriate at all times and lessons were concluded by means of a quick recap on the work done.

Various forms of questioning were used during lessons to good effect. These included global and individual questions and included many higher-order questions. This effective use of questioning

helped to revise previous learning, to focus students' attention and to advance students understanding of concepts.

Well-structured routines were in evidence during all lessons observed. In practical lessons students were quick to get set up. Work-pieces and tools were efficiently collected from where they were stored and work was started promptly. Similarly, at the conclusion of the lessons, no time was wasted during the tidy up. Such routines promote responsibility for creating an ordered learning environment among students and are commended.

At the time of the inspection third year MTW and Leaving Certificate CS students were engaged in the completion of project work associated with the certificate examinations. It was noted that all students were able to work independently with only occasional assistance from the teacher. Such independent learning opportunities encourage student initiative and creativity. It was evident that teachers were facilitating and managing this complex task of completing large numbers of individually designed projects very well.

In a junior-cycle class the students were completing a CD rack. The overall design of each project being produced was identical but the teacher was encouraging the students to adapt and modify this design to personalise their work. The gradual introduction of the design process into project work is good practice as students initially find this aspect of the syllabus very challenging. It is suggested that assigning students into a small number of groups, with each group working on a design solution, would be a beneficial support for students at this early stage and would foster peer learning.

In one senior-cycle lesson observed, the use of a variety of teaching methodologies helped to facilitate student learning. The problem of how to cut an opening through a floor to accommodate a stairway was first introduced by means of questioning. The data projector and the textbook were then used to provide more information to the students. The class was then called up around a scale model of a building which the teacher used to demonstrate the solution. Finally the students were asked to sketch the solution in their copies and were supported while doing this by the teacher who constructed a similar diagram on the chalkboard. Using such a variety of strategies often ensures that the various learning styles of the students are supported and is excellent practice.

The members of the technologies teaching team are commended for their involvement with other areas of learning such as the building of the stage sets for the annual talent show. Such work encourages teamwork and collaboration amongst the staff and the students. An extension being added to the school has been well used by the CS teachers as a practical resource for senior-cycle students. Regular visits to the site, as building progresses, allows students see the theory of CS being put into practice. This is an excellent application of the subject knowledge to an area directly relevant to the lives of the students.

Terminology associated with MTW and CS was well used during lessons and students were able to communicate effectively with their peers, the teacher and the inspector using subject-specific language. The relaxed, secure atmosphere during all classes visited, as well as the good rapport between teacher and students contributed to student willingness to participate in lesson activities. Teachers constantly acknowledged and affirmed students' work.

ASSESSMENT

There is continuous assessment of students' project work in MTW and CS, as is good practice. Oral feedback is provided to students. Consideration should be given to clearly defining for the students exactly how these marks are allocated and in what proportion. This increased detail for the students on their performance would likely lead to increased effort on their part. It would enable them to have a greater understanding of where their strengths lie and of areas for improvement.

Examinations are held in November and at the end of the school year for first, second and fifth year students. Transition year students have assessments in December and at the end of the year. Students sitting certificate examinations have tests midway through the first term and sit mock examinations in February. Reports are sent home to parents following 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.

Consideration should be given by the subject teachers to combining the outcomes of continuous assessment with formal test results. The aggregation of results from practical work, end-of-topic tests and formal written tests is compatible with the aims of the subject syllabuses. Such a system would provide encouragement for the students for a sustained effort throughout the year.

Homework is assigned to students regularly, which is good practice. Students' portfolio work was of a good standard with an appropriate level of subject areas covered. The standard of students' drawings was in keeping with the quality appropriate to the year group and the level of study. There was evidence of students' work being monitored regularly. In keeping with assessment for learning (AfL) principles it is recommended that teachers periodically provide detailed written, formative and constructive feedback on both copy and portfolio work. Such developmental feedback affirms high quality work while guiding students towards improved answering.

In all classes observed, teachers recorded student attendance with good records also being kept of student achievement. These records are used to identify trends in students' attainment, to inform future teaching strategies and to address the needs of individual learners.

SUMMARY OF MAIN FINDINGS AND RECOMMENDATIONS

The following are the main strengths identified in the evaluation:

- Time allocation at senior cycle for CS is very satisfactory and the provision of double and single periods, across all year groups, caters well for practical work, project work drawing and theory.
- The MTW and CS classrooms are well equipped, organised and resourced and the risks and hazards document for the rooms is very comprehensive. Good health and safety practices were emphasised at all times.
- Teachers have engaged very well in CPD.
- Resources are developed collaboratively and shared.
- The quality of teaching and learning in all lessons observed in the course of the inspection was very good and well structured routines were in evidence in all cases.

- Teachers were facilitating and managing the task of completing large numbers of individually designed projects very well.
- The use of a variety of teaching strategies supports the many learning styles of students.
- There is continuous assessment of students' project work in MTW and CS.

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

- MTW should be timetabled for an overall allocation equivalent to four periods per week for each of the three years of the junior cycle.
- Assigning students into groups, with each group working on a design solution, would be a beneficial support for students at the early stages of developing students' design skills.
- A more formal approach of combining continuous assessment with formal test results should be adopted and written feedback should be provided to students on their class work, portfolio work and homework in keeping with assessment for learning principles.

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.