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

St Joseph’s Christian Brothers’ School
Nenagh, County Tipperary
Roll number: 65370B

Date of inspection: 13 October 2010
REPORT
ON
THE QUALITY OF LEARNING AND TEACHING IN CONSTRUCTION STUDIES AND MATERIALS TECHNOLOGY (WOOD)

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SUMMARY OF MAIN FINDINGS AND RECOMMENDATIONS

The following are the main findings of the evaluation:

- Very high quality teaching was observed.
- A very good standard of student knowledge and understanding was displayed in the lessons observed, appropriately reflecting the age and ability range of the classes concerned.
- Whilst some very good use of affirmative comment by teachers was seen in students’ copybooks, this practice is not consistently implemented.
- Collaborative planning is well conducted, providing a good basis for further developmental planning of the teaching methodologies used.
- Co-ordination of the subject department is very effective, with the teachers working closely together and thus providing for the rotation of the role of subject co-ordinator in time.
- There was very good individual lesson planning by teachers.

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

- The school should consider prioritising the development of a separate wood preparation room and materials store as resources permit.
- A written plan should be provided for Construction Studies in Transition Year.
- Common procedures should be adopted and publicised among the students with regard to combining ongoing assessments, including assessment of students’ design projects, and house examination marks at Christmas and in summer.
INTRODUCTION

St Joseph’s CBS, a voluntary secondary school for boys, serving the people of Nenagh and its hinterland, has an enrolment of 472. The school provides a broad curriculum and the technologies are represented by Technical Graphics (TG) in addition to Materials Technology (Wood) (MTW) in junior cycle and Design and Communication Graphics (DCG) in addition to Construction Studies (CS) in senior cycle. Graphics and Construction Studies (GCS) is studied as a specialism in the Leaving Certificate Applied (LCA) programme in the school. This report details an inspection conducted in one day during which three lessons were observed involving a total of five lesson periods. 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.

TEACHING AND LEARNING

The teaching observed in the course of the inspection was of a very high standard. The lessons were marked by a range of innovative approaches and strategies that held the attention of the students and provided support for effective learning. Of particular note was the use of an interactive *Who Wants to be a Millionaire?* game using the data projector at the beginning of an MTW lesson with a second-year class. This provided an exciting means of reviewing the theory learned in previous lessons as students were chosen in succession to answer questions gaining extra winnings for the class with each correct answer. Homework sheets, corrected in the lesson referred to, provided very appropriate preparation for the use of the coping saw. The students later cut a curved component of a design project with the coping saw, following a demonstration of the skills involved by their teacher and a fellow student. This integration of theory and practical work was a further reinforcement of learning. The lesson observed provided coherent links between the topics being covered.

Students collaborated in their work in each of the lessons observed, as in the case of a lesson on the calculation of U-values in a CS lesson. In this lesson a student who had been absent from a previous lesson worked with his desk mate in solving the problem being attempted. However, collaboration between students happened in a natural and open way, unstructured by the teachers. The subject department should explore further opportunities to apply collaborative group work in a more structured way to maximise efficiency in reaching learning goals.

A wide range of teaching resources was used appropriately. A lesson on graphic communication in GCS made effective use of appropriate video material when exploring the uses of graphics and the vocational opportunities it provides. It is suggested that the use of such video material could be further improved by interspersing it with other activities in the course of the lesson. In this lesson, the very effective brain-storming session which took place during which job areas associated with graphics were identified might have been one such activity. Following discussion of graphic communication, students went on to draw their chosen logos on pre-prepared developments on light card which they later cut out and enveloped.

The lessons were conducted at an appropriate pace and very effective questioning techniques were applied to ensure that students’ answering gave direction to lesson development in line with good practice. The issue of sustainability and the environmental impact of packaging were introduced through skilled questioning by the teacher in the GCS lesson and the students made meaningful contributions to the discussion that ensued.
The structure of the observed lessons was consistent and logical and in each case lessons ended with a lively recapitulation of the material covered. This was provided by students answering a range of questions which also gave assurance of effective learning having taken place. In each of the lessons, the students displayed a very good standard of knowledge and understanding of the respective subject and the material covered, appropriate to the age and ability range of the classes concerned.

The atmosphere in each of the lessons observed was at all times pleasant and was based on the mutual respect of students and teachers. Students were disciplined in undertaking their work and remained willingly on task. Very occasionally when a student had to be called on to pay attention, this was done sensitively but firmly and had immediate effect.

Assessment of students’ progress was a constant feature of teaching in the lessons observed and provided an incentive for learning. Questioning was the most common form of informal assessment and it was carefully structured with questions being almost invariably directed to specific students and being re-phrased or restated if necessary to allow the student to answer. Students were consistently affirmed for their answers. Occasionally other students were asked to add to or to comment on an answer and this was done in a sensitive way that helped to further develop the sense of collaboration in lessons in line with good practice. Evidence of good-quality response to and correction of students’ homework was observed and some very good use of affirmative comment was seen in students’ homework copybooks.

SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT

MTW and CS are available to all students as optional subjects in junior cycle and senior cycle respectively. The procedures in place to provide for students’ choice of subjects, including the designing of option bands, follow good practice and are appropriately based on identifying and meeting the preferences of students. Students and parents are supported in making subject choices with inputs from the guidance counsellor, the teachers of the optional subjects and school management in the course of first year, third year and Transition Year and also at information nights provided for this purpose.

Good practice is followed with regard to timetabling for MTW, CS and GCS and sufficient teaching time is allocated to provide for completion of the respective syllabuses. MTW is provided with one double period lesson per week in first year. This level of time allocation in first year facilitates students to study each subject before choosing their subjects for second year and third year. Where opportunities exist for collaboration between teachers in common areas of the respective syllabuses as, for example, in teaching orthographic projection to students in MTW and TG, these should be fully exploited in the context of equality in the allocation of time to each optional subject in first year. MTW is timetabled for four periods in second year and third year. CS is timetabled for two periods per week in Transition Year and for five periods per week in fifth year and sixth year. GCS is timetabled for three periods per week in each of the four sessions of LCA. This is an appropriate time allocation given that the LCA students undertake work experience for one day per week. In each case the time allocated is appropriately divided between single and double periods to facilitate the completion of practical work.

There is a whole-school assessment policy in place to which the subject department adheres. The formal modes of assessment applied in MTW and CS include examinations and tests at mid-term, at Christmas and at the end of the summer time, together with ongoing assessment of the students’ class work, homework and design-project work. Teachers combine the ongoing assessment with
the test results when arriving at end-of-term results. This good practice is broadly consistent with the assessment modes for MTW and CS in the certificate examinations. Teachers adopt individual approaches to combining the students’ marks.

It is recommended that the subject department agree the division of marks between ongoing assessment and examinations and present students with an agreed system that is well-defined, transparent and common to all classes in the subjects. Feedback to students, based on their progress towards the end-of-term or end-of-year result, can then be very clearly and consistently presented and can act as an affirmation of progress and as an incentive to further effort. Within this more formalised system, teachers would still be free to exercise their professional judgement regarding the level of reward that is appropriate to the individual student’s effort and progress in light of ability and application.

The facilities provided for teaching MTW and CS include a woodwork room, a drawing room and another class room which is used when the other rooms are not available. The woodwork room contains a large bench saw and a planer-thicknesser, for use by the teachers, together with the usual machines for student use. The room is equipped with a central dust-extraction system. The room is well maintained and neatly kept, however movement is restricted due to the presence of the machines for teacher use. Some materials are stored under the wall-mounted benches used to mount a range of power tools. Some sheet materials are also stored vertically against a wall in the room. It is recommended that the management of the school prioritise steps to alleviate congestion in the woodwork room. It is suggested that solutions to be considered should include the provision of a separate machine room and material store. Given that MTW and CS are at present timetabled for a total of fifty-nine periods per week, while the weekly timetable consists of forty periods, and that this level of demand will continue, the development of a second woodwork room should also be considered as resources permit.

The drawing room is equipped with eleven networked desktop computers and students are introduced to the use of the SolidWorks computer-aided design (CAD) program on these computers from an early stage in their study of MTW. This is good practice. Students also use the computer resources for the completion of written coursework project materials. There is a good level of information and communication technology (ICT) use by students. The rooms used for teaching the subjects contain a range of subject-related materials including charts and posters and some samples of students’ work. In general an attractive and visually rich learning environment is provided.

The teachers of MTW and CS have been actively involved in the programme of continuing professional development (CPD) provided through t¹, the technology subjects support service, in recent years primarily in support of the introduction of new syllabuses in DCG and Technology. It is a positive outcome of their involvement that the teachers have applied the skills and knowledge further developed through this CPD to their teaching of MTW and CS.

**Planning and Preparation**

Department planning is well advanced in CS and MTW. Written plans are in place for each of the subjects. These include appropriate reference to whole-school policies. There is at present no written plan for CS in TY. It is recommended that this plan be written as a matter of priority and included in the overall TY plan. The outcomes of subject-department meetings, which are held formally once per term, are recorded. The subject plans are collaboratively reviewed annually in line with good practice. The subject-department co-ordinator was appointed in the current year on
the basis of seniority, as has been the practice in the school. The co-ordination of the subject department is very effective and the teachers work in close collaboration for the improvement of the subjects in the school. The subject department should in time consider the rotation of the role of subject co-ordinator to equalise the work involved and to give each member of the subject team experience of co-ordination.

As a next step in the further development of the subject department plan, it is recommended that the section of each subject plan that deals with teaching methodology be further developed. It is clear from the lessons observed that a wide range of teaching approaches and strategies is being applied and it is urged that these be acknowledged in subject planning and that further opportunities for collaborative learning, group work and other student-led activities be identified, particularly in lessons dealing with theory content. A very good level of individual planning for lessons was observed and this included the preparation and provision of materials for students’ use.

Appropriate planning for the sourcing and development of ICT teaching resources was evident in the course of the inspection. Very effective use was made of these resources and it is recommended that they be listed within the subject-department plan. The acquisition of class materials and other resources is carefully controlled and monitored by senior management and there is a clear, well defined, central system for ordering and payment. This is good practice. It is suggested, in the interests of consistency and the further development of responsible planning, that the subject department be made fully aware of the average amount spent on class materials and other consumables in recent years and that the department use this as a guide for budgeting in the current year.

Planning in relation to the maintenance of a high standard of health and safety in the woodwork room follows good practice. This has resulted in the display of appropriate signage, both mandatory signs for the use of personal protective equipment and information signboards adjacent to each machine displaying the precautions and procedures for its safe use. Appropriate rules for behaviour and the use of the woodwork room are prominently displayed. Safe operational areas are demarcated around the machines for use by students. It is suggested, to further improve the very good standard of safety signage, that additional information signboards be displayed laying out the rationale for the safe operational areas and the implications for movement within the room that result. The subject department has carried out a safety audit in the woodwork room in line with good practice. There is a current safety statement in the school which includes a section on the woodwork room. This statement has been recently reviewed. It is recommended that the statement be reviewed on an annual basis.

Good practice is followed with regard to record keeping and reporting. Standard teachers’ diaries are central to the recording of attendance and progress in MTW and CS. These diaries form the basis for reporting to parents at annual parent-teacher meetings and in formal school reports. There is a students’ journal system in place that provides an immediate channel of communication between the individual teacher and the home and helps to keep parents informed of their sons’ progress in MTW and CS. The principal carries out an analysis of results in the certificate examinations annually and this is also done within the subject department. It is suggested that such an analysis of outcomes in MTW, CS and GCS should be included in the subject-department plan and be used to inform further development in the teaching of the subjects.
CONCLUSION

A summary of the draft findings and recommendations arising out of this evaluation was presented to the principal and the subject teachers at the conclusion of the evaluation. These were discussed with the inspector.

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