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

Bush Post Primary School
Riverstown, Co. Louth
Roll number: 71750U

Date of inspection: 21 October 2010
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 Bush Post Primary School. 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 and the subject teachers. 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

Bush Post Primary School currently caters for 440 students; 242 males and 198 females. It offers Materials Technology Wood (MTW) as an optional subject for the junior-cycle programme. In early December, sixth-class students and their parents are invited to an open night in the school where the various subject departments showcase their subjects and resources. In May, an information evening is held for the parents of incoming students where optional subjects are discussed. Within two weeks of this meeting, forms containing details of students’ preferred choices of optional subjects must be returned to the school. This information is used to establish subject band combinations which best accommodate students’ choices.

Students moving to senior cycle are offered three programmes: an optional Transition Year (TY), the Leaving Certificate Applied (LCA) and the Leaving Certificate Vocational Programme (LCVP). Students are well supported and advised on subject and programme choice through discussion with the guidance counsellor, information evenings and informal discussions with teachers. At these meetings the differences between the programmes offered are outlined and the importance of making careful subject choices is emphasised.

Construction Studies (CS) is offered as one of the optional subjects in the LCVP and is allocated five periods per week. All transition year students study CS for four periods per week and the module extends over the full year. MTW is allocated four periods per week. This time provision is good and is sufficient for the completion of the respective syllabuses and schemes of work. Furthermore, these lessons are well distributed across the timetable which is in line with best practice. Both MTW and CS classes are of mixed ability and students sit certificate examinations at the level appropriate to their abilities.
The subject department has two classrooms available in which to teach MTW and CS. Both rooms are neat, tidy and well organised and provide exciting and stimulating learning environments for students. Care and attention has been paid to one of the rooms in particular with a wide variety of students’ creative projects displayed. A teacher-constructed display case outside this room, filled with subject related projects, helps to raise the profile of the subjects in the school. The subject teachers are commended for their hard work in creating such an educationally rich space.

Participation rates indicate that the subjects are popular with students. The participation by female students at junior-cycle level is above the national average and this is a positive development. The percentage of female students studying CS however drops sharply. It is suggested that school management, the guidance counsellor and the subject department explore ways to encourage more females to retain the subject through to senior cycle. A survey of the female students in the school to determine their attitude to the subjects could provide useful information and guide further development in this area.

The subject is well resourced with materials, machines, portable power tools and hand tools. The arrangements for the purchase of class materials for MTW and CS are effective. Resources are supplied in response to the needs of the department with no reasonable request being refused.

There has been a good level of engagement with in-service activities. The teachers of MTW and CS have attended all subject-specific training provided by the Technology Subject Support Services (T4). Senior management is commended for supporting staff involvement in continuing professional development (CPD) and thus facilitating the in-career development of the teaching team.

**PLANNING AND PREPARATION**

The subject department has a co-ordinator in place and this role forms part of a post of responsibility. Planning meetings are held three to four times a year. Detailed minutes of these meetings are retained and are shared with senior management. These formal meetings are supplemented by frequent informal meetings.

The subject department has a separate planning folder for junior cycle, TY and LCVP. Planning is well developed and broadly follows the SDPI template. The TY plan is made up of three modules; graphics, building and engineering. The scheme of work within this plan outlines, under each topic to be covered, the proposed learning outcomes for the students. Details on teaching approaches and methodologies as well as proposed methods of assessing each topic are also given. It is suggested, as a next step to further improve this very good subject plan, that the resources available for each topic be listed. This would encourage a more collaborative approach to the development of resources. Furthermore it would help the subject department to easily identify topics where teaching and learning resources need to be developed.

The schemes of work within both the MTW and the CS plans need some development. They currently consist of a list of subject topics to be completed within a set timeframe. It is recommended that each topic be examined to determine the exact learning outcomes to be achieved by students from that unit of study. The most successful approaches to be used to deliver and assess each topic should be included, having been discussed by the teaching team. As suggested for the TY plan, the resources available across the department should be pooled and catalogued.
When working on the planned programme of work for the junior-cycle year groups it is recommended that efforts be made to make the design process a core theme filtering through all project work. Students generally find the design process difficult, so in order to build up their confidence and skill, it should be introduced incrementally from the beginning of first year. The development of freehand sketching skills needs a similar approach. Good sketching techniques are becoming increasingly important to students studying the technology subjects.

A strong emphasis on safety permeates all activities in the workshops. Standard warning signage is displayed prominently around both rooms. It is suggested that the subject department draft machine-specific safe-use rules which could then be laminated and displayed adjacent to each machine. Safe operational areas (SAOs) are marked around machines and personal protection equipment (PPE) was available for the use of teacher and students as required when using particular machines. As is good practice, a safety audit of both rooms is carried out annually.

Bush Post Primary School participates in the Delivering Equality of Opportunity in Schools (DEIS) action plan. The development of literacy through a whole school approach is central to this plan. In one of the classrooms visited, students benefit from having a key-words list for the subject on display. It is recommended, as a further support for the development of literacy, that all new terminology encountered during a lesson be displayed on a flip chart, poster or on the whiteboard. Students should write these words in their copybooks and the new words should remain on view for several lessons.

Senior management and the subject department analyse students’ outcomes in certificate examinations each year and compare them to the national norms. The identified trends indicate that the uptake of higher level papers at both junior cycle and senior cycle is above the national average. These analyses inform planning for the future as is good practice and should be included in the planning folders.

TEACHING AND LEARNING

All lessons observed, during the course of the inspection, had clear learning outcomes which were shared orally with the students at the outset. In some cases, the lesson aims were displayed using the data projector and were used as an aid when summing up the lesson. The writing of these aims on the chalkboard is encouraged as they can be displayed throughout the lesson thus helping to keep both the teacher and the students focused on the lesson.

Planning for individual lessons was good with a good range of resources prepared. Continuity with previous lessons was assured by means of well paced introductions to the lessons. Questioning was used effectively to revise previous learning, to advance students’ understanding of concepts, and to introduce new topics. Good routines were evident in the practical lessons observed with little time being lost during the setting up and clearing away of tools and work pieces in the workshop. It was obvious that students were used to a neat and ordered environment and they willingly contributed to the maintenance of these high standards.

During one fifth-year CS lesson observed, students were engaged in carrying out experiments to discover how the mix of concrete can affect its strength and finish. Students were placed in six groups and, after a teacher demonstration, each group was asked to cast a cube of concrete. The teacher had prepared a formwork for each group and a tray containing the required mix. Each group proceeded to mix the concrete with help and guidance from the teacher. What made the
lesson interesting was that each group had a different concrete mix, designed to show that by leaving out or having too much of one ingredient the resulting concrete is affected. By the end of the lesson the cast cubes had been put to one side to be tested another day. The students were asked to write up their experiment for homework and were given a handout with headings to support them in this work. This was an interesting, enjoyable and successful lesson through the use of active learning methods.

Demonstrations observed during the inspection were of a high quality. Demonstrations are extremely important as they allow teachers to model, and students to observe, the proper execution of woodworking and construction procedures. Instructions were clear and the teachers made deliberate efforts to integrate relevant theoretical information and terminology into their demonstrations. Students’ learning was effectively scaffolded when principles and skills were taught to whole class groups, to smaller groups and to individual students.

The teachers modelled best health and safety practices in all lessons observed and they ensured that students did likewise by closely monitoring all activities. Safety points were consistently repeated to reinforce learning and compliance. There was appropriate use of personal protection equipment in all situations where this is deemed necessary and this is commended.

In spite of the fact that the design process does not appear in detail in the planning folders there was evidence that the principles involved are followed in some practical lessons. Students are asked for a design input into projects and, as their confidence and ability grow, their input increases. Students are also asked to compile a write up on these projects to include coloured sketches. This is good practice but there was evidence that this approach is not being applied consistently across the subject department. It is recommended therefore, that through the planning process, an agreed approach to the teaching of the design process be implemented.

Good use was made of information and communication technology (ICT) to focus students’ attention and support their learning during lessons. Presentations included digital photographs of construction elements, SolidWorks drawings and models, as well as bulleted notes and sketches. The carefully planned use of these resources greatly enhanced the students’ experience of the material being learned.

The members of the subject department are commended for their willingness to undertake co-curricular work. This involves working with many other subject departments in the school and it helps to build a strong sense of teamwork.

Students were relaxed and secure as they undertook their work. The atmosphere in each of the classrooms visited was positive and encouraging. There was clearly a good rapport between the students and the teachers. Students’ efforts were acknowledged and affirmed regularly and this encouraged a good level of interaction. Both teachers and students demonstrated enthusiasm for the subjects.

**ASSESSMENT**

Students’ attendance, attainment and progress are recorded by teachers. All year groups have examinations at Christmas. Junior Certificate and LCVP students have “mock” examinations in spring with all other year groups having end-of-year examinations. In addition to this, third year, fifth year and sixth year students have bi-monthly house exams. Reports are sent home to parents after each set of examinations and parents of students in each year group are invited to attend one
parent-teacher meeting during the year. This system of closely monitoring students’ progress, along with the use of a student journal, represents a good support structure for students and their parents.

In addition to these formal tests, it was evident that teachers were marking project work and portfolio work. It was reported that a percentage of marks is allocated from these types of assessment towards students’ Christmas and summer test results. Such a system of accumulating marks from continuous assessment provides an incentive for sustained effort from students and is very good practice.

An examination of student journals and discussion with the teachers indicated that homework is being allocated to most classes. No homework however was being allocated to the TY group. Homework should be allocated to all year groups as it is an important part of the learning process and supports the work done in school. In order to get best value from assigned homework, it is recommended that the subject department develop a policy of giving written formative and constructive feedback on students’ work. This practice would be in line with assessment for learning (AFL) principles.

To build on the students’ ability to self-evaluate their work it is suggested that the subject teachers make an increased use of the marking schemes and the Chief Advising Examiners’ reports for the subjects. These are a useful resource for examination-year students as they contain model answers as well as clearly showing where and how marks are allocated. By teaching students how to use these resources the teacher can help the students to identify and target areas for improvement.

**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 at senior level is good with an even distribution of lessons across the week.
- Both rooms available for the teaching and learning of the subjects are bright, well maintained and well organised.
- The subject teachers have attended all sessions of the programme of continuing professional development (CPD) made available through the Technology Subjects Support Service (T4).
- Participation rates indicate that the subjects are popular with students in the school.
- Teachers used ICT very effectively to support student learning.
- The uptake of higher level in both junior cycle and senior cycle is above the national average.
- Theoretical information and subject terminology were well integrated into teacher demonstrations.
- The rapport between students and teachers was very good.
- Continuous assessment is used to provide an incentive for sustained effort from students.

As a means of building on these strengths and to address areas for development, the following key recommendations are made:
• The MTW and CS schemes of work need to be developed to include student learning outcomes for each topic, as well as the methodologies to be used, the teaching resources available and the proposed methods of assessment.

• Planning for the subjects should have an increased emphasis on the development of the students’ ability to produce freehand sketches and to work through the design process.

• A text-rich environment should be created as a support for the development of literacy levels in the school. New terminology and key words should be displayed prominently in the classroom and these should be recorded by the students.

• The subject department should develop a policy of giving written formative and constructive feedback on students’ work, in line with assessment for learning (AfL) principles.

Post-evaluation meetings were 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.