

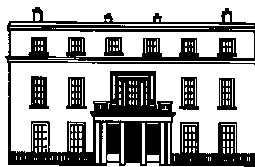
An Roinn Oideachais agus Scileanna

Department of Education and Skills

**Subject Inspection of Metalwork and Engineering
REPORT**

**Newpark Comprehensive School
Blackrock, County Dublin
Roll number: 81001I**

Date of inspection: 23 October 2009



**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 METALWORK AND
ENGINEERING**

SUBJECT INSPECTION REPORT

This report has been written following a subject inspection in the Newpark Comprehensive School, Blackrock, conducted as part of a whole school evaluation. It presents the findings of an evaluation of the quality of teaching and learning in Metalwork and Engineering 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 and examined students' work. 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. The board of management was given an opportunity to comment in writing on the findings and recommendations of the report, and the response of the board will be found in the appendix of this report.

SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT

Newpark Comprehensive School offers Metalwork to junior cycle students and Engineering to senior cycle students in the Leaving Certificate Applied (LCA) programme and in the established Leaving Certificate programme. The time allocated to the subjects is generally in line with common practice and class periods are distributed in a combination of single, double and triple periods. This is appropriate and allows sufficient time to complete all aspects of the syllabuses.

Opportunities have been taken to avail of the continuing professional development (CPD) courses currently being provided by the Technology Subjects Support Service (t⁴). This commitment to CPD will help to provide the subject department with the skills necessary to incorporate parametric modelling techniques into the teaching and learning of Metalwork and Engineering.

There are currently two members of the metalwork and engineering subject department, one of whom holds recognised qualifications to teach the subjects to the highest level. While it is acknowledged that the teachers who are currently timetabled to teach the subjects have made valuable contributions to the development of a positive technology education culture within the school, it is recommended that school management make every effort to deploy suitably qualified teachers to this subject department.

While most of the items of equipment and machines in use in the metalwork and engineering room are in accordance with those outlined on the current equipment list as specified in the relevant Department circulars, there are a number of machines that do not comply. To address this issue and the various safety hazards identified during the inspection, school management must instigate a full risk assessment of the metalwork and engineering room and any other room used

for the teaching and learning of technology-based subjects. The State Claims Agency/Department publication 'Review of Occupational Health and Safety in Technologies in Post-primary Schools' should be referenced when carrying out this risk assessment.

The school has received funding for health and safety purposes as per circular letter PBU 5/2005 and a significant proportion of this funding has been utilised to modernise the metalwork and engineering room. School management must ensure that all remaining funds from this grant are used for their intended purposes and that all health and safety risks are addressed.

Upon entering first year, students are asked to choose their preferred optional subjects. While it was reported that there is considerable flexibility during the initial weeks in first year, allowing students to change subjects, this system limits students' exposure to the various optional subjects on offer in the school. School management should review the system currently in place with a view to developing one where students can experience more optional subjects and make their subject choices based on their aptitudes and skills.

Currently, Transition Year (TY) students may choose to study a technology-based module as part of the programme. As Technology is not currently offered as part of the Leaving Certificate programme, school management, in collaboration with the teachers involved in delivering the various technology subjects, should consider tailoring this module to include aspects of all three technology subjects offered in fifth and sixth year. This module could therefore provide students with a tangible link between their junior cycle technology subjects and the relevant senior cycle equivalent. This module would supplement the optional-subjects brochure, the parents' information briefing and the individual inputs from subject teachers that help to support students when making their subject choices at senior cycle.

The uptake of Metalwork and Engineering is good among boys in all year groups. The uptake of Metalwork among girls at junior cycle is good, while at senior cycle the number of girls choosing Engineering is a cause for concern. School management, in conjunction with the subject department, should continue to explore strategies to promote the subjects among all students and especially among girls at senior cycle.

PLANNING AND PREPARATION

A subject coordinator has been appointed to oversee the planning and organisation of the subjects in Newpark Comprehensive School. Formal planning meetings occur at the beginning of the school year and informal meetings and discussions take place regularly throughout the year. It was reported that records are maintained of all formal meetings as is best practice. These meetings provide a forum for ongoing subject planning.

A very good quality subject plan has been developed for Metalwork and Engineering in the school. This document outlines the rationale and aims of the subjects, their organisation and delivery and also details methodologies and resources currently in use. To further develop the culture of planning within the subject department, some consideration should be given to identifying medium to long-term strategic goals for the further development of Metalwork and Engineering in the school. Some possible areas could include improving the learning environment for students and modernising tool and equipment storage solutions.

Learning outcomes in both the theoretical and practical aspects of the syllabuses are clearly outlined for all year groups. In order to achieve these outcomes, appropriate curricular content is

identified and scheduled for completion. Teachers' planning then builds on this scheduled work to deliver course content in a sequential and structured manner. This form of curricular planning is commended.

Teachers' individual planning and preparation for lessons was good and a variety of resources was prepared in advance of some lessons. Evidence of additional resources was apparent from teachers' individual planning files. Information and communication technology (ICT) resources, including subject-specific presentations and useful websites, have been identified and it was reported that these resources are utilised when theoretical lessons take place in one of the school's computer rooms. The subject department should also consider further integrating ICT into the teaching and learning of lessons that take place in the metalwork and engineering specialist room. This could be most beneficial and would also allow for the excellent technology website, devised within the subject department, to form part of students' learning experiences on a more regular basis. The development and use of this website is highly commended and provides teachers and students with a very useful and easily accessible resource.

It is suggested that the subject department identify aspects of the subject areas that might need additional resources and work collaboratively to address any perceived areas for development.

TEACHING AND LEARNING

The teaching and learning observed in Metalwork and Engineering lessons was good. In some instances the overall quality could have been improved by planning teacher and student activities in a more effective manner. The overall structure of lessons was good, with all lessons beginning with an introductory section focusing on the chosen topic. This had the effect of identifying the specific tasks for each lesson and also helped students to identify the success criteria for the lesson. This is good practice. The duration of introductions varied considerably; best practice was observed where concise instructions were given to students and key areas were discussed. Where the lesson's introduction was prolonged, students' engagement was diminished and the value of the instruction was reduced.

All lessons observed were consistent with the planned programme of work and were suited to the level and experience of students. In some instances students' knowledge and experience of the subject was taken into account when allocating specific tasks; this form of differentiation helped to ensure that students who were capable of more difficult tasks were given the opportunity to extend their learning. The use of this strategy with mixed-ability groups such as the LCA 1 group is commended.

All lessons observed were primarily practical lessons. The organisation and structure of most of these lessons were very good. As class sizes varied considerably, a number of approaches were used to demonstrate skills and techniques to students. This was most successful when students received instruction as a class group. Where class groups were divided into smaller groups, students who were not receiving instruction were left with little to do. This resulted in some students becoming distracted by unrelated equipment and machines in the room. While dividing the class group into smaller groups for demonstration purposes has many advantages, the subject department should plan these demonstrations carefully in order to maximise their benefits fully.

In all lessons observed, students were very well behaved and a positive learning atmosphere was evident. Teacher-student interactions were pleasant and mutually respectful. Lessons observed were characterised by teacher introduction, topic development, teacher demonstration and student

activity. This structure generally worked well. To further improve the benefits gained from practical lessons, teachers should consider recapping the key points of the lesson at the end. By incorporating a summation section into lessons, time could be used more efficiently and effectively.

The layout and organisation of the metalwork and engineering room in Newpark Comprehensive School is in need of modernisation. Modern storage solutions would help to improve tool storage and accessibility. Obsolete and decommissioned tools and equipment should be removed, unless they are educationally valuable, in order to maximise the space available in the room.

Some machines had safety zones demarcated around them, as is good practice. This should be extended to all machines in order to provide a visible deterrent for students and thereby help them to refrain from crowding around machines. Personal protective equipment was used in all lessons observed and students and teachers carried out their tasks in a safe manner. Good safety signage is displayed in the classroom and students, when questioned by the inspector, had a very good understanding of safety procedures and of specific safety mechanisms on machines such as the centre lathe.

Students' practical skills showed good progression from junior to senior cycle. This is also apparent in student uptake and attainment rates in the certificate examinations as student achievement, while good at junior cycle, improves significantly at senior cycle.

ASSESSMENT

A common homework and assessment policy has been devised and is implemented by the subject department. Assessments generally combine both practical and theoretical elements of the syllabuses in order to award students combined results for both areas. This is good practice as it helps to prepare students for the modes of assessment used in certificate examinations in all programmes.

Formal homework is not introduced until second year for metalwork students. It is recommended that the subject department review its current procedures with a view to introducing formal homework and assessments at an earlier stage for junior cycle students.

Student project work and written work are assessed regularly and examples of formative feedback were evident on second-year students' work. This practice is commended. All project work is corrected upon completion and feedback is given orally to students. This feedback enables students to reflect on their learning and to improve their skills by implementing the advice and guidance given to them. Records of students' progress are maintained and these records help teachers to inform their practices and to report students' progress to parents periodically.

SUMMARY OF MAIN FINDINGS AND RECOMMENDATIONS

The following are the main strengths identified in the evaluation:

- A very good quality subject plan has been developed by the metalwork and engineering subject department.
- Student learning outcomes underpin the planning for the delivery of curriculum content in all year groups.

- Differentiation was used to good effect in some lessons to maximise student engagement with the subject matter.
- Students were very well behaved in the lessons observed and a positive and mutually respectful relationship between teachers and students was apparent.
- Students' practical skills showed good progression from junior to senior cycle as did student attainment in certificate examinations.
- The provision of formative feedback to students in relation to both their written and practical work is commended.
- The development of a school-based metalwork and engineering website is an innovative strategy aimed at promoting student participation and completion of homework and research tasks.

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

- School management should make every effort to deploy suitably qualified teachers to the metalwork and engineering subject department.
- School management must instigate a full risk assessment of all rooms used for the delivery of technology-based subjects.
- School management must utilise all remaining funds allocated for the improvement of health and safety in technology rooms as per circular PBU 5/2005.
- School management should review the optional subject choice system currently in place at junior cycle with a view to developing a system where students can experience more optional subjects and make their subject choices based on their aptitudes and skills.
- The management and structuring of practical lessons and specifically demonstrations should be carefully planned in order to maximise the benefits to students.
- The subject department should review its homework and assessment policies.

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.

Published December 2010.

Appendix

SCHOOL RESPONSE TO THE REPORT

Submitted by the Board of Management

Area 1: Observations on the content of the inspection report

1. The Board of Management wishes to acknowledge the professionalism and courtesy of the Inspectorate in the manner in which the evaluation was carried out.
2. It notes the joint union directive in operation at the time of the evaluation directing staff not to attend pre or post evaluation meetings or scheduled meetings during the time of the evaluation.
3. The Board welcomes the positive affirmation of the work being done in this Department.

Area 2: Follow-up actions planned or undertaken since the completion of the inspection activity to implement the findings and recommendations of the inspection

1. A new safety statement has been put in place and implemented.
2. Changes have been implemented in relation to the delivery of Technology and the use of appropriate rooms.
3. The issue of qualifications is being addressed at present.
4. A system of sampling has been put in place for the 1st option subjects up to the mid term break.
5. The Department has undertaken a review of homework and assessment and implemented a number of changes in this area.