

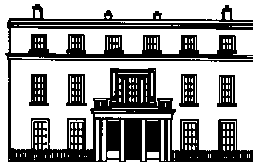
An Roinn Oideachais agus Scileanna

Department of Education and Skills

**Subject Inspection of Metalwork and Engineering
REPORT**

**Blackwater Community School
Lismore, County Waterford
Roll number: 91509E**

Date of inspection: 16 March 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 METALWORK AND
ENGINEERING**

SUBJECT INSPECTION REPORT

This report has been written following a subject inspection in Blackwater Community School. 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 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, deputy 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, and the response of the board will be found in the appendix of this report.

SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT

Students in Blackwater Community School are provided with the chance to study a technology subject in all programmes offered in the school. Currently, Metalwork and Engineering are offered as optional subjects at junior and senior cycle respectively. Technology is offered as part of the school's optional Transition Year (TY) and as part of the school's Leaving Certificate Applied (LCA) programme. In order to further diversify students' experiences of technology education, the current TY module should incorporate some aspects of Engineering. In doing so, students could continue to develop their skills, new students could be exposed to the subject and it could also be used to help students to maintain knowledge and skill levels between their Junior Certificate metalwork and the Leaving Certificate engineering programmes.

The time allocated to the subjects in most year groups is appropriate, providing sufficient time to complete all aspects of the various syllabuses. These allocations include four periods per week in second and third year and five periods per week in fifth and sixth year. The allocation of three periods per week in first year is below standard practice and should be increased if possible.

There are two members of the metalwork and engineering subject department, both of whom have attended the continuing professional development (CPD) courses provided by the Technology Subjects Support Service (t⁴). This engagement in CPD is commended. To further develop the subject department's skill sets and to maximise the resources at its disposal, senior management should endeavour to deploy both members of the subject department at both junior and senior cycle. This would further develop the collaborative approach to delivering technology education in the school.

The model employed to structure first-year students' optional subject choices has varied significantly over the past number of years. Senior management expressed the view that having tried and tested sampling programmes of varying durations and currently operating a system whereby students choose their optional subjects upon entry, a final decision will be made to determine the school's future policy in this regard without delay. This decision should be based on students' experiences, with particular value placed on developing a system where students choose optional subjects based on their aptitudes, knowledge and skills.

Upon entering second year, students are asked to further refine their optional subject choices by choosing to continue to study two subjects for the remainder of their junior cycle programme. This system has resulted in good uptake of the subjects with two class groups in second and sixth year. The supports provided for students at these important decision-making times include an open evening for parents and students and a summer-camp for local primary school pupils in August.

The metalwork and engineering room is well resourced and maintained. The room is also equipped with information and communication technology (ICT) resources allowing ICT to be integrated into lessons easily. An external health and safety audit and risk assessment was carried out a number of years ago in the school. Senior management should instigate a review of this audit using the joint publication by the Department of Education and Skills and the State Claims Agency, *Review of Occupational Health and Safety in the Technologies in Post-Primary Schools*, to structure this review.

There is generally a good awareness of safety in the engineering classroom. This has been achieved through the display of a wide range of safety signs and student-made safety posters in the room. In order to further develop this awareness among students, the subject department should demarcate safety zones around all machinery as is best practice.

PLANNING AND PREPARATION

The overall quality of subject is planning is very good. The subject department has achieved this in a collaborative manner and is in a very good position to further develop subject planning through its ongoing engagement in the planning process.

A subject co-ordinator is appointed on a rotating basis. The role of the co-ordinator is clearly defined and the duties attached to this role are carried out effectively. Good records of subject department meetings were presented during the inspection. These records demonstrated a good level of discussion pertaining to a variety of relevant issues.

A good quality subject plan has been developed over time. The document is reviewed regularly and the most recent review date is clearly displayed, as is best practice. To further develop this plan, the subject department should now revisit the curricular planning section and focus on detailing expected student learning outcomes as opposed to structuring the delivery of subject matter. In addition to this, the area of supports for students with additional educational needs should be reviewed and subject-specific interventions should be identified. This could be achieved most successfully with the assistance of the school's educational support team.

The subject department has embraced the area of strategic action planning and presented a number of actions plans as part of the subject planning documentation. This is very good practice. The existing action plans are most worthwhile and should be pursued. In addition to the goals

outlined in these plans, the subject department should also develop an action plan aimed specifically at improving student attainment in the subject area. This plan should encompass a study of all contributory factors and identify clear, achievable and measurable goals. The subject department should initiate this process and embrace this most worthwhile challenge without delay.

Individual planning and preparation for lessons by teachers was excellent. Considerable efforts have been made to develop useful resources designed to assist student learning. Examples of these resources include: the development of differentiated modified textbooks for senior-cycle students, the collation of working drawings into junior and senior cycle workbooks, the compilation of examination and assessment materials and the development of process sheets for parametric modeling and manufacturing projects.

TEACHING AND LEARNING

Best practice was observed where the key learning outcomes of lessons were clearly outlined and communicated with students from the outset. This was particularly prevalent in a senior cycle lesson aimed at developing students' understanding of working drawings and the required marking out procedures associated with particular components. Practical lessons would have benefitted from a similar focus with the importance of specific aspects of manufacture such as accuracy, finish and function stressed to students. In doing so, students would be encouraged to concentrate on the techniques being taught and on their own levels of success.

Demonstrations were generally used to good effect in lessons. These demonstrations took the form of ICT-assisted explanations and individual teacher demonstrations of specific techniques and processes. To further improve the quality and value of teacher-led demonstrations, the subject department should consider the identification of a specialised demonstration area to facilitate the explanation of important procedures. The further incorporation of questioning into these demonstrations would also help to engage students and to further ascertain their levels of understanding.

In practical lessons, individual assistance and guidance was administered at students' desks. This was a useful strategy, allowing the teachers to provide support and guidance to students in a supportive and constructive manner.

Problem-solving was encouraged in one lesson observed. This was achieved by providing all students with sufficient information to achieve a certain level of parametric modelling; once students had attained the required level they were encouraged to continue independently in order to fully complete the task. This promotion of independent learning is commended. Efforts should also be made to provide other methods of differentiation, aimed at ensuring that students of all abilities reach their full potential in both practical and theoretical settings.

Classroom management was excellent in all lessons observed. A number of good practices have been developed that have led to this, including the use of seating plans, organisational rotas and good record keeping. A positive, mutually respectful atmosphere was evident during all lessons observed ensuring that classroom-management challenges were negligible.

Students' ICT skill levels were very good and their practical skills were appropriate for the age and level of the various groups. There has been an improvement in uptake and attainment in certificate examinations over the last number of years and this is a most welcome development.

To maintain this impetus and to further raise attainment levels, the subject department should make every effort to implement the applicable recommendations made in the most recent Chief Examiner's Reports for Metalwork and Engineering.

ASSESSMENT

It is subject department policy to administer common assessments where possible. The use of common assessments supports subject planning and helps to ensure a common pace of course coverage and the maintenance of high standards across class groups. This good practice is commended.

The development of curricular plans to identify learning outcomes in both practical and theoretical settings would help the subject department to further develop the assessment procedures currently utilised. The full implementation of the various assessment-for-learning (AfL) strategies identified at a recent whole-school seminar would also be beneficial in this regard.

Students are formally assessed in end-of-term examinations. It was reported that these tests are differentiated according to students' abilities. Generally these examinations consist of a combination of both practical and theoretical assessments, as is best practice. The introduction of additional end-of-topic assessments would also help teachers to ascertain students' knowledge and understanding and to determine their proficiency and skill levels in a practical setting while providing teachers with ample opportunity to give meaningful formative feedback.

A homework notice board, used to display prescribed homework exercises, is prominently displayed in the engineering room. This is a practical and worthwhile intervention aimed at ensuring that students record homework exercises accurately and in a timely manner. To maximise the benefits of this notice board, teachers should endeavour to highlight prescribed homework at the beginning of lessons, thereby encouraging students to identify the benefits of homework and to engage fully in their class work in order to be able to complete the prescribed work satisfactorily.

Assessment results made available to the inspector demonstrated good profiling of student achievement and monitoring of their work. Students' project work is corrected upon completion and feedback is given to students orally. This feedback helps students to reflect on their work and to further improve their skills by implementing the advice and guidance given to them by their teachers.

SUMMARY OF MAIN FINDINGS AND RECOMMENDATIONS

The following are the main strengths identified in the evaluation:

- The metalwork and engineering room is well resourced and maintained.
- The subject department has embraced action planning in order to maintain the development of the subjects in the school.
- Teachers' individual planning is excellent.
- Student behaviour was very good.

- Teachers provided students with a good level of practical instruction and tuition during the lessons observed.
- Uptake of metalwork and engineering is very good.

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

- The existing curricular plans should be further developed to focus on students' learning outcomes.
- Senior management should endeavour to deploy both members of the subject department at both junior and senior cycle.
- The subject plan should be further developed to include additional initiatives aimed at further including students with additional educational needs in the metalwork and engineering classroom.
- The subject department should include raising student attainment as one of its key strategic plans.
- Assessment-for-learning strategies should be further incorporated into the teaching and learning of the metalwork and engineering.

Post-evaluation meetings were held with the teachers of Metalwork and Engineering and with the principal and deputy principal at the conclusion of the evaluation when the draft findings and recommendations of the evaluation were presented and discussed.

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Appendix

SCHOOL RESPONSE TO THE REPORT

Submitted by the Board of Management

Area 1: Observations on the content of the inspection report

The Board of Management acknowledge receipt of this subject inspection report which provides an accurate reflection of the quality of learning and teaching of engineering in Blackwater Community School.

The Board and Engineering Department staff welcome the affirmation of quality teaching and learning as listed in the main strengths section of the report evaluation.

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

All recommendations will inform future Departmental planning.

1. Existing curricular plans will be updated to focus on students' learning outcomes.
2. Every effort will be made to deploy both members at both junior and senior cycle where practical.
3. Further inclusion of students with special needs and the continued raising of student attainment have currently been included in short and medium term Action Plans.
4. Assessment for learning strategies will inform future planning.