

An Roinn Oideachais agus Scileanna

Department of Education and Skills

**Subject Inspection of Technical Graphics and
Design and Communication Graphics
REPORT**

**Christian Brothers Secondary School
New Ross, County Wexford
Roll number: 63600F**

Date of inspection: 20 September 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 TECHNICAL GRAPHICS AND
DESIGN AND COMMUNICATION GRAPHICS**

SUBJECT INSPECTION REPORT

This report has been written following a subject inspection in Christian Brothers Secondary School (CBS) New Ross, conducted as part of a whole school evaluation. It presents the findings of an evaluation of the quality of teaching and learning in Technical Graphics (TG) and Design and Communication Graphics (DCG) 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 teacher, examined students' work, and had discussions with the teacher. The inspector reviewed school planning documentation and the teacher's written preparation. Following the evaluation visit, the inspector provided oral feedback on the outcomes of the evaluation to the principal and subject teacher. 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

A graphics subject is offered to students in the school's Junior Certificate, Transition Year and established Leaving Certificate programmes. The allocation of class periods to the subjects is appropriate within these programmes. Student uptake of the graphics subjects in the school is good. A good percentage of boys and girls choose to study DCG particularly at senior cycle. The commitment to providing students with very good exposure to graphics subjects is commended.

The specialist room provided for the delivery of graphics subjects has been very well designed and provides an excellent facility for both the teaching and learning of graphics subjects. This room has been re-developed in recent years to incorporate additional information and communication technology (ICT) resources appropriate to the new DCG syllabus. Significant attention has been given to the aesthetics of the room and this has resulted in the development of a classroom that fosters students' creativity and design skills.

The subject department has attended many of the recent continuing professional development (CPD) courses provided by the Technology Subjects Support Service (t⁴) and has also developed a network of links with teachers in other schools. The department reported that these links have been beneficial to all involved and have provided the subject department with considerable support. This commitment to ongoing professional development is commended.

Students receive good supports when making their option choices and the sampling opportunities available to them in first year and TY help them to choose based on their experiences, aptitudes and skills. During the first-year sampling programme, students study four optional subjects

including TG. Upon entering second year, students are asked to choose their two preferred subjects. The optional subject bands are then formed based on a 'best fit' model. At the end of TY, a similar system exists. The school has recently introduced a system of setting for some optional subjects. It was reported that this system has been introduced in an effort to improve academic achievement in the school and to cater for specific cohorts of students. To ensure that all students are being appropriately catered for, senior management should regularly evaluate both student outcomes and students' satisfaction rates with their optional subject allocation and modify the current system if appropriate.

PLANNING AND PREPARATION

The quality of planning and preparation within the graphics subject department is of a very high standard. The subject department has made considerable efforts to develop subject plans for both TG and DCG. These plans contain all of the required information regarding the day-to-day organisation of the subjects. The subject plans also contain detailed records of long-term curricular plans, annual budgets, subject planning records and long-term goals for the development of the subject in the school. To further build upon this quality planning, the subject department should include specific long-term goals related to the development of teaching and learning in the subject area.

Curricular plans based upon students' learning outcomes have also been devised to complement the long-term curricular plans. These detailed plans identify specific learning outcomes to be achieved within specified timeframes. Planning the delivery of a subject in this way helps to ensure that students' learning is central to the planning process and is readily assessable.

A comprehensive TY plan has also been developed to describe the course content of the DCG TY module. This plan outlines the various curricular strands covered as part of the module including: orthographic projection, graphics in design and communication, freehand sketching, ICT and the compilation of a portfolio outlining the various steps in the design of the model racing car. Photographs and posters of previous entries into the *'Formula 1 in Schools'* competition also help to publicise the students' achievements and to raise awareness of the applications of DCG among the wider school community.

The planning and preparation of all lessons observed was of a very high standard. This included the preparation of objects that were used to help students visualise prescribed tasks, ICT resources that could be introduced to lessons quickly and effectively and models and teaching aids that enabled students to actively engage in their learning.

TEACHING AND LEARNING

The quality of teaching and learning observed during the course of this evaluation was excellent. All lessons observed were very well structured and learning outcomes were clear and communicated effectively to students. Sequential process sheets were utilised during lessons to help scaffold students' learning while also allowing students to progress at a pace suitable to their requirements.

Parametric modelling software was used effectively as both a teaching and learning tool in lessons observed. The modelling software was used to explain and to help students visualise complex shapes and surfaces and thus supported the delivery and explanation of concepts. This software was also utilised to enable students to put their learning into practice and to develop their own modelling skills. Examples included a TY lesson where students created their own computer-aided design and a fifth-year lesson where the ICT software was used as a teaching tool to reinforce and to improve students' visualisation of a hyperbolic paraboloid.

In all instances students were active in their learning and participated fully. One specific example of this was in a junior-cycle lesson where groups of students were given the opportunity to build, using wooden cubes, a three-dimensional structure that they were then asked to draw using their instruments. This active learning approach, incorporating group work, helped to create a very enjoyable lesson where the key learning outcomes were achieved in a participative manner. This approach to teaching graphics is commended.

The questioning strategies utilised during the lessons observed encouraged student participation and helped to foster a supportive and inclusive environment where all students' contributions were valued and appreciated. Questions were appropriately differentiated and students were eager to offer their suggestions and answers. The teacher's approach and rapport with students contributed to the development and maintenance of this positive atmosphere.

Some care was taken to include all students in the lessons observed. A number of strategies were incorporated especially for students for whom English is an additional language. Examples of these strategies included the identification of specified keywords on the students' worksheets in bold capital letters and the use of models to help with the explanation of difficult concepts.

Students were incorporated into the teaching and learning process whenever the opportunity arose. In one instance a student arrived late for class and was immediately included in a learning activity. This was achieved in a sensitive and supportive manner and reduced the possibility of a disturbance to the lesson. This example of sensible classroom management was indicative of the teacher's approach to all lessons observed.

Students displayed a good level of drafting and parametric modelling skills. Students' prior learning was demonstrated during question and answer sessions with the teacher and during conversations with the inspector. Student uptake and attainment at higher level is very good at both junior and senior cycle with almost all students studying higher-level DCG in recent years.

ASSESSMENT

Formal examinations are held in the school at Christmas and the end of the summer term. In addition to these formal assessments students are assessed on an ongoing basis throughout the year and regular progress reports are sent home enabling parents to accurately track their child's progress.

A combination of portfolio work and examination work is used to ascertain students' end-of-term grades in all year groups. This was particularly evident in the assessment procedures employed for TY students where sketches, solid models, portfolios and the manufactured model carbon-dioxide (CO₂) powered racing car are used for assessment. This combined approach to

assessment is appropriate especially in preparation for the assessment components of the DCG syllabus.

Homework exercises were corrected at the beginning of each lesson observed and new tasks were set at the end of each lesson. The regular correction of homework tasks combined with the good levels of formative feedback administered to students during lessons helped to encourage students to identify and address their difficulties. Similar assessment for learning (AfL) strategies could be planned and introduced as part of the subject department's long-term strategic vision for the further development of the subject.

SUMMARY OF MAIN FINDINGS AND RECOMMENDATIONS

The following are the main strengths identified in the evaluation:

- The quality of graphics teaching in the school is excellent.
- The graphics subjects are very well supported by senior management in CBS New Ross.
- Uptake of graphics subjects in the school among both boys and girls is very good.
- The planning and preparation for the delivery of all graphics subjects in the school is of a very high standard.
- Students' demonstrated very good knowledge, understanding and skills during the evaluation.

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

- Long-term strategic plans should be developed aimed at further improving the teaching and learning of graphics.

A post-evaluation meeting was held with the principal and subject teacher 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 would like to compliment the Technical Graphics and Design and Communication Graphics Department on the highly commendable nature of this inspection report which will undoubtedly contribute to the on-going development of the associated subjects at the school. The Board would like to acknowledge the courteous and professional manner with which the inspector conducted the subject inspection.