An Roinn Oideachais agus Scileanna

Department of Education and Skills

Subject Inspection of Technical Graphics and Design and Communication Graphics
REPORT

Athboy Community School
Athboy, Co. Meath
Roll number: 91517D

Date of inspection: 14 December 2010

AN ROINN OIDEACHAIS AGUS SCILEANNA | DEPARTMENT OF EDUCATION AND SKILLS

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 Athboy Community School. It presents the findings of an evaluation of the quality of teaching and learning in Technical Graphics and Design and Communication Graphics 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 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

Athboy Community School currently caters for 497 students; 281 males and 215 females. The school is split between two campuses, formerly known as St. James' Vocational School and St. Joseph's Secondary School. The majority of classes for Technical Graphics (TG) and Design and Communication Graphics (DCG) are timetabled in the St. James' Vocational School campus. This incurs some loss in tuition time as students must be transported by bus between both campuses. A new school, which will accommodate the full school population in one location, is being built with its completion due towards the end of 2011.

TG is one of ten optional subjects offered by the school for the Junior Certificate (JC) examination. Optional subject choices are made prior to attending school in first year. To assist in making these choices, an open day is held in early spring where sixth-class students and their parents are invited to visit the school and are addressed by subject teachers, the guidance counsellor and senior management. Students are asked to rank the optional subjects according to their preferences with subject option bands subsequently formed which best accommodate these choices. Students who find that they are unhappy with a chosen subject are permitted to change their option subjects up to the mid-term break in October. This whole arrangement is commendable as it prioritises the needs of students and they are well supported in making informed decisions.

DCG is offered as an optional subject in the established Leaving Certificate (LC) and the Leaving Certificate Vocational Programme (LCVP). Subject option bands are created based on student preferences. This is commended as good practice. Students are informed and advised by subject teachers and the guidance counsellor. An information booklet is also made available to students.

This provides details on each subject including course content, assessment methods, pre-requisite knowledge and related career paths.

Five periods per week are allocated to DCG at senior cycle and four periods per week are allocated to TG at junior cycle. This is sufficient for the completion of the respective syllabuses. The subject periods are evenly spread across the week. All classes in these subjects are of mixed ability with access to higher level and ordinary level being accommodated within class groups. Students' outcomes in certificate examinations are analysed by the subject teachers and senior management every year with results compared to the national norms. This analysis is used to inform future planning for the subjects as is good practice.

The subject department has three rooms available to it for the teaching of the subjects. One of these is a designated drawing room and is currently being refurbished. At the time of the inspection, the subject department was awaiting the delivery of an interactive whiteboard and a visualiser for this room. New tilt-action drawing boards have been acquired and there are good information and communications technology (ICT) resources available for the teaching of *SolidWorks*. The other two rooms used for the teaching of TG and DCG are both woodwork rooms, with one room in each campus. The room in the former St. Joseph's Secondary School campus needs some development. The chalkboard available in this room is not permanently fixed and is completely unsuitable for the teaching of technical drawing. It is recommended that tool racks be removed from one of the walls and a suitable chalkboard be secured to it. Efforts should also be made to create a more stimulating learning environment in this room through the display of students' work, posters, worksheets and DCG project outputs from previous years. Very good, printable resources are available on the Technology Subjects Support Services (t4) website (www.t4.ie).

The subject teachers have attended all the subject-specific continuing professional development (CPD) provided by t4. Senior management is moving towards the introduction of alternative modes of assessment and, with this in mind, a member of the subject department has attended training related to assessment for learning (AfL). This commitment from management and teachers to CPD is commended.

PLANNING AND PREPARATION

Subject department planning meetings are facilitated by school management twice per year. It is recommended that minutes of these formal meetings be retained as documentation of the work being done by the department as well as a record of future plans for the development of the subjects. These minutes should be shared with senior management. It is also recommended that a subject co-ordinator be appointed with this role being rotated amongst the subject teachers. The duties of a co-ordinator would include the ordering of resources, co-ordination of subject meetings, ensuring plans and policies are devised and updated and liaising with senior management.

The subject department plans follow the SDPI template. Within these documents, schemes of work, which are in line with syllabus requirements, have been created for each year group. The content to be covered is in the form of lists of topics, with *Gantt* charts used to schedule the timing of the work throughout the year. As a next step in the development of these plans, it is recommended that each topic be examined to establish the precise learning outcomes to be achieved by the students from each unit of study. This will move the schemes from content-focused to learner-focused working documents. Reference should also be made to the resources available for the teaching of each topic. These would include handouts, interesting websites,

digital presentations, reference books, *SolidWorks* models as well as solutions prepared by teachers. The cataloguing of a shared bank of resources would strengthen collaboration amongst subject teachers and would prevent duplication of work. Within the schemes, details should also be given of the most effective methods of assessment of each topic and on the teaching methodologies which have been found to be most successful in engaging and motivating students.

The optional Transition Year (TY) does not contain a DCG module. It is recommended that the introduction of such a module be considered as the loss in continuity may result in a drop off in student uptake of the subject for the LC or LCVP. It is suggested that basic drawing skills, parametric modelling using *SolidWork* and freehand sketching should form the core of the TY work. Such a module would provide those who did not study TG in junior cycle with an opportunity to sample the subject thus placing them in a more informed position regarding subject choice in senior cycle.

In a second-year lesson observed, students, on the advice of their teacher, had already decided the level at which they would sit their Junior Certificate examination. It is suggested that this decision should be delayed until as late as is practicable in third year. This may encourage a better uptake of the higher level paper. To facilitate this, the subject department needs to complete the teaching of the ordinary level course before moving to higher level material.

TEACHING AND LEARNING

All lessons observed had a clear learning intention and, in most cases, this was shared orally with the students. It is suggested that it would be beneficial for the teachers to display the intended learning outcomes on the chalkboard or by using the data projector. These could then be revisited during the lesson and ticked off as each is achieved. Such a strategy would assist the teacher and the students to focus on the specific objectives of the lesson and would facilitate the evaluation of the success of the lesson at the end of the class period.

It was obvious during the inspection that students had established routines with regard to entering the classroom and getting organised for their drawing lessons and, as a result, very little teaching time was wasted. Lessons were carefully structured and linked well with previous learning. The introduction to the lesson generally took the form of questioning by the teacher with care taken to ensure that all students had an involvement. Students felt well affirmed and were comfortable during these interactions.

Group work was a feature of one lesson observed on orthographic projection. Students were placed in predetermined groups of four and were presented with a question from a past Junior Certificate examination. They were then instructed to complete their own individual answers and were asked to discuss any difficulties with their fellow group members. This strategy can be effective, however, in this instance, many of the students made errors when setting up their solution and they struggled throughout the lesson. Other students failed to complete the question by the end of the double lesson period. Students were still at a stage in the topic where they needed a lot of teacher input. It is suggested that this teaching methodology works best for students who are revising or consolidating learning.

The chalkboard, which is still central to the teaching of graphics, was well used in some lessons. The step-by-step construction of a drawing solution, the use of coloured chalk to highlight different line types and the modelling of drawing methods by the teacher, all contributed to the learning experience of the students. In addition to using the chalkboard for the presentation of work, it is recommended that teachers' use of information and communications technology (ICT)

be increased to support student learning. During lessons observed on orthographic projection and auxiliary projection there were many opportunities where the modelling of solutions using *SolidWorks* would have further improved the teaching and would have effectively supported and reinforced learning.

From the observation of students' work it was clear that some work is being done on the teaching of freehand sketching. The development of freehand sketching skills is an important element of the DCG project work and these skills need to be nurtured and developed from an early stage. It is recommended that the subject department adopt a more structured and directed approach to this area and seek more opportunities to promote the development of these skills amongst students.

There was good teacher movement throughout the classroom during the lessons observed. This helped to keep students on task and allowed them to receive appropriate individual tuition where required. Teacher-student interactions were purposeful and mutually respectful and this contributed to a good classroom atmosphere.

ASSESSMENT

Senior management is promoting a move, across all subject departments, towards the integration of continuous assessment marks with Christmas and summer test grades. There are six scheduled continual assessment tests for each year group and these are spread across the year. Results from the first three of these are combined with results from Christmas examinations and the remainder are combined with results from summer examinations. Reports are sent home to parents twice per year and parents of students in each year group are invited to attend one parent-teacher meeting during the year. Junior and Leaving Certificate students do not sit Christmas tests but have "mock" examinations in spring. Results from the continuous assessments are entered into the school's e-Portal system and parents have access to details on their child's attendance and progress, at all times, through the use of an individual access code. These assessment procedures provide an incentive for sustained efforts from students throughout the year and both parents and students are kept well informed of progress.

Based on an examination of student journals and following discussion with the teachers of TGDCG, it was clear that homework is not allocated regularly. Homework supports the work students do in the classroom and is an important part of the learning process. This has been recognised in the subject department's planning documentation. It is recommended that homework be given on a regular basis to all year groups. Homework can incorporate the completion of work started in class, short-answer questions from Section A of the certificate examinations, freehand sketching practice and full examination questions. A record should be kept of the homework assigned, it should be collected and corrected promptly and students should receive formative feedback on their work.

Concern was expressed that many of the students are unable to complete homework due to not having proper drawing facilities at home. To counteract this difficulty, it is recommended that an A3 drawing board and tee-square be placed on the school's book list for first-year students. All students who select TG as one of their optional subjects should be required to purchase proper equipment, at the outset, if they wish to study TG for the JC.

A sample of students' portfolios was examined. Many of these contained a significant number of incomplete and incorrect drawings and some of the drawings showed a poor standard of neatness and draughtsmanship. It is recommended that constructive and formative feedback, in keeping with assessment for learning (AfL) principles, be provided to students through the evaluation of

their portfolios. The importance of neatness and draughtsmanship should be reinforced and key mistakes should be highlighted. Drawing sheets should be initialled and dated with an affirming or developmental comment given. This, combined with the oral feedback already given during class, should help to encourage students to maintain good quality sheets and folders. As a further incentive, it is suggested that the subject department explore ways to incorporate the assessment of portfolio work with the existing whole-school continuous assessment model.

SUMMARY OF MAIN FINDINGS AND RECOMMENDATIONS

The following are the main strengths identified in the evaluation:

- The arrangements in place for the selection of subjects for junior cycle and senior cycle are good.
- Teachers have engaged in extensive CPD.
- The time allocation to the subjects is good with lessons well distributed across the week.
- One of the rooms available for the teaching of the subjects is currently being refurbished to a high standard.
- Lessons were well structured with good continuity and links to previous learning.
- Students' performance in certificate examinations is analysed every year by management and the subject department and are compared to the national norms.
- Marks awarded to students through continuous assessments are aggregated with those from Christmas and summer examinations.
- The rapport between students and teachers was found to be very good.

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

- A subject co-ordinator should be appointed and the role should be rotated amongst the teachers.
- The layout of the schemes of work should be revised so as to identify the student learning outcomes for each topic as well as the teaching resources, teaching methodologies and assessment methods appropriate in each instance.
- A DCG module should be introduced into TY to maintain continuity and help inform subject choice.
- An increased use of ICT, particularly virtual models using *SolidWorks*, is encouraged to help support and reinforce learning.
- Homework should be allocated more regularly to all year groups studying the subjects.
- Students' portfolio work needs to be more closely monitored with written developmental feedback provided by the teacher.

A post-evaluation meeting was held with the teachers of Technical Graphics and Design and Communication Graphics and with the 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 of Athboy Community School welcomes this report which reflects the good work being done by management and staff to facilitate and promote Technical Graphics and Design and Communication Graphics on the school's curriculum. It welcomes the advice and recommendations made and will seek to implement these immediately.

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

A DCG module has been included in this year's Transition Year programme, increased access to ICT will be possible following the move to a new premises. Schemes of work and allocation of homework will be revisited. The school is currently introducing a system of Assessment for Learning which will entail written developmental feedback to students as recommended in this report. An A3 drawing board and tee-square has been included on student book lists.