An Roinn Oideachais agus Scileanna
Department of Education and Skills

Subject Inspection of Mathematics
REPORT

Arklow CBS,
Coolgreaney Road, Arklow,
Co. Wicklow

Roll number: 61770U

Date of inspection: 15 October 2013
REPORT
ON
THE QUALITY OF LEARNING AND TEACHING IN MATHEMATICS

INFORMATION ON THE INSPECTION

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MAIN FINDINGS

• The overall quality of teaching and learning ranged from fair to good, with scope for development in the range of methodologies used by some teachers.

• There is very good support from management for the procurement of subject specific resources and for teachers to access continuing professional development (CPD).

• Timetabling for Mathematics is very good.

• Numeracy has been identified as the first theme for School Self-Evaluation and considerable work has already taken place in this area.

• To support and promote Mathematics a range of cocurricular and extra-curricular activities are arranged for students.

MAIN RECOMMENDATIONS

• Methodologies encountered during Project Maths in-service and the differentiation of activities should be utilised more regularly in all lessons.

• The mathematics department should collaborate to update the subject department plan with reference to the organisational details of the department and schemes of work.

• A systematic review of students’ performance in state examinations should be discussed by the mathematics department and used to inform subject department planning and to support the numeracy improvements.

• Minutes of the mathematics department should be retained so that records of decisions taken and associated actions are clearly identified.
INTRODUCTION
Arklow CBS is a voluntary secondary school for boys with a current enrolment of 345. The school offers the Junior Certificate, the established Leaving Certificate and the Leaving Certificate Vocational Programme (LCVP). The school has an optional Transition Year (TY).

TEACHING AND LEARNING

• The quality of teaching and learning ranged from fair to good in the seven single lessons observed. The majority of teachers explicitly stated the learning objectives for the lesson but many did not revisit them at the end. In addition to stating lesson objectives all teachers should ensure that these are reviewed to establish what learning has taken place.

• Good practice was noted in a few lessons where Project Maths approaches were utilised. This included problem solving and discovery-learning activities. In these lessons there was a good balance between teacher input and student-centred activities with a focus on teaching for understanding.

• In most lessons, traditional teaching was observed. This usually took the form of the teacher demonstrating a technique and students completing a series of questions. In many of these lessons, the interactions between the teacher and students were limited to students providing the next step in the solution of a question. It is recommended that all teachers use more Project Maths approaches, which they will have encountered during national in-service. In this way, students would have greater opportunities to deepen their understanding of Mathematics and develop skills and competencies which are transferable across the curriculum.

• Questioning strategies in many lessons were limited to lower-order type questions. All teachers should use higher-order questions more frequently in lessons to encourage students to become critical thinkers in the subject. In some lessons, student questions could have been exploited more to develop the learning for the whole class. In some lessons, as teachers circulated in the classroom, they answered students’ queries on an individual basis rather than exploiting their questions to develop the lesson. It is recommended that all teachers use assessment for learning (AfL) techniques during lessons.

• In some of the more traditional lessons, too much time was allocated to repetitive student tasks and these were not sufficiently differentiated to challenge the range of abilities within the class or to extend learning. All teachers should ensure that tasks are differentiated and subsequent activities are designed to challenge the more able students to progress new learning.

• In a few lessons, very effective use was made of additional maths resources such as teacher-developed supplementary materials. During an applied measure lesson, support materials were integrated effectively to allow a concept to be developed from the concrete to the abstract. However, in another lesson concrete materials should have been used to support students’ understanding as some students had difficulty visualising the concept.

• Homework was assigned in all lessons observed. Teachers should ensure that an appropriate range of suitably differentiated questions or tasks are assigned for homework that will support students’ learning from the lesson. The school’s homework policy and the rationale for assigning homework in this instance should be referenced.
• There was evidence that some students’ written work is poorly presented. Many teachers provide oral feedback to students with some written formative feedback noted in a few copybooks. The practice of providing students with written formative feedback should be a regular feature in students’ assessment with areas for development clearly recorded to support and guide students’ learning.

• Formal assessment practices in Mathematics are good. Where possible common assessment and marking schemes have been developed. Appropriate mechanisms are in place to provide feedback to parents regarding students’ progress.

**SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT**

• Timetabling arrangements for Mathematics are very good. This includes daily contact with the subject for almost all year groups, a good distribution of mathematics lessons throughout the week, concurrent timetabling for many year groups and the deployment of additional teachers at senior cycle.

• The mathematics department comprises six teachers the majority of whom are graduates in the subject. Some teachers have limited contact with the subject and this should be reviewed so that all members have a greater involvement with Mathematics.

• Generally at senior cycle two teachers share in the rotation of higher level classes. Given the school’s desire to increase the uptake of higher level, planning within the department should be undertaken to increase capacity to address this area.

• Requests for subject specific resources are accommodated by management. Further collaboration among the mathematics department should take place to identify and source additional resources that would support students’ learning in all lessons.

• In addition to a Maths Club and events organised during Maths Week students have other opportunities to access Mathematics through cocurricular and extra-curricular activities.

• Management is very supportive of teachers participating in CPD. The majority of teachers have attended recent Project Maths in-service. All teachers should continue to attend such CPD events to ensure that the most suitable methodologies are being integrated into the teaching of Mathematics.

• The school has chosen numeracy as the first theme for school self-evaluation. A school improvement numeracy committee has been established and a plan has been developed. Commendable work has taken place in this area to date with targets identified using baseline data with actions to support targets documented.

**PLANNING AND PREPARATION**

• The position of coordinator of Mathematics is voluntary. Formal meeting times for subject planning take place but no records are retained. It is recommended that minutes of departmental meetings are retained so that key discussions and decisions taken are retained.

• The mathematics department plan should be reviewed to ensure that the organisational details of the plan reflect current practice. Schemes of work should be updated following discussion by all members of the department regarding the use of methodologies, resources and methods of assessment used for each area of the various strands.

• To support and compliment the work of the whole-school approach to numeracy the mathematics department should collaborate and identify strategies for the teaching of common topics.
• A systematic review of students’ performance in state examinations should be used by the mathematics department to develop schemes of work. It is recommended that the mathematics department develop and implement specific strategies to increase the uptake of higher-level Mathematics and monitor the strategies to ensure that they are effective and modify where necessary.

• The TY plan should be reviewed to ensure to maximise the learning opportunities for the mixed-ability cohort.

The draft findings and recommendations arising out of this evaluation were discussed with the principal and subject teachers at the conclusion of the evaluation. 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.

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