An Roinn Oideachais agus Scileanna

Department of Education and Skills

Subject Inspection of Mathematics
REPORT

Adamstown Community College
Station Road, Adamstown
County Dublin
Roll number: 76097U

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AN ROINN OIDEACHAIS AGUS SCILEANNA | DEPARTMENT OF EDUCATION AND SKILLS

REPORT
ON
THE QUALITY OF LEARNING AND TEACHING IN MATHEMATICS

SUBJECT INSPECTION REPORT

This report has been written following a subject inspection in Adamstown Community College. It presents the findings of an evaluation of the quality of teaching and learning in Mathematics and makes recommendations for the further development of the teaching of this subject 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, examined students' work, and had discussions with the teachers. The inspector reviewed school planning documentation and teachers' written preparation. Following the evaluation visit, the inspector provided oral feedback on the outcomes of the evaluation to the principal, deputy principal and subject teachers. 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.

SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT

Adamstown Community College is a co-educational non-denominational school operating under the aegis of County Dublin Vocational Education Committee. The school opened in September 2009 and at the time of the inspection the enrolment of 194 was comprised exclusively of first and second-year students.

Timetabling provision for Mathematics is very good. Management are keen to promote Mathematics and consequently the time allocated to Mathematics is generous and the scheduling of mathematics classes is in line with best practice.

The mathematical capabilities of students transferring from the feeder primary schools are determined using appropriate standardised tests and, following an analysis of the outcomes, mixed-ability classes are formed in first year. The first year classes follow a common mathematics programme underpinned by common formal and informal assessments. In order to enhance the existing arrangements and to inform the design and delivery of the first-year mathematics programme, all students transferring into first year should sit a mathematics competency test designed by the mathematics department in partnership with the feeder primary schools. The analysis of the outcomes should identify areas to be particularly addressed by the first year programme and should determine the focus of any assessments conducted throughout the year.

Provision for learning support in Mathematics is well managed and features a range of interventions including small group and one-to-one withdrawal and the formation of a dedicated learning-support class in first year. Students with special educational needs or in need of learning support are identified during the transfer process and very good links are maintained with the feeder primary schools to ensure that the composition of the learning-support cohort is in keeping with their abilities and that any anomalies that come to light during the entrance assessments are fully addressed. Currently, procedures for referring students for learning support and for aligning the material covered during withdrawal are largely informal. As the school grows, more formal

referral and reporting procedures will have to be established and a wider range of interventions, including team teaching and in-class co-operative support should be utilised.

The mathematics department is very well resourced. Each teacher has access to a computer and data projector while each classroom is equipped with two computers for student use. In addition, the school's two computer rooms are also available on request. The school's information and communication technology infrastructure includes a virtual learning environment (VLE) to facilitate subject department planning and provide the school community with access to curricular content, assessment materials and other relevant resources. The mathematics department has been proactive in embracing this new technology and work on populating the VLE with mathematics content is already underway. The content is appropriate to the curriculum and focuses on developing the students' mathematical skills. As the VLE develops, the mathematics content should evolve to include the dynamic materials provided by the Project Maths development team, lesson content developed by the teachers and materials developed by the students themselves.

Co-curricular activities related Mathematics form an integral part of the mathematics department's activities. Maths Week is celebrated each year and the students participate in the various competitions and quizzes organised by the Irish Mathematics Teachers Association (IMTA). These activities enhance the profile of Mathematics in the school and give students an appreciation of the ubiquitous nature of the subject. Future developments in this area should include establishing a presence at the school's open night and the inclusion of mathematical games and puzzles on the school's VLE.

PLANNING AND PREPARATION

Subject development planning in Mathematics is very well managed. A co-ordinator is in place and it is envisaged that, in time, the post of co-ordinator will rotate among the members of the department. Given that the department is in the early stages of its development and that the implementation of Project Maths is an immediate priority for the department, it is recommended that the present co-ordinator remain in place until Project Maths is fully embedded and the composition of the department is more fully established. In order to support the work of the co-ordinator, one member of the department should adopt the role of ICT co-ordinator for Mathematics while a second assume responsibility for liaising with the Project Maths development team and the IMTA.

A subject department plan, detailing the department's various activities and outlining the curricular programme to be followed by each year and level has been developed. The plan provides a very good structure to support the ongoing work of the department, however as the department develops, the plan should evolve to include agreed methods for carrying out key operations, strategies to ensure that lessons are suitably differentiated and the most effective resources to be integrated in lesson delivery.

Individual teacher lesson planning was very good. This was evident from the innovative seating arrangements in the classrooms, the seamless manner in which resources, prepared in advance, were integrated into the delivery of the lessons and quality of the teachers' planning documentation. As mentioned above, the existing good practice in resource integration should be reflected in the subject department plan for Mathematics.

TEACHING AND LEARNING

The quality of teaching in evidence during the inspection was in almost all cases very good. In the best cases, the lessons' objectives were explicitly agreed at the outset and a review of the lessons' content was conducted prior to their conclusion. The approach adopted by the teachers served to deepen the students' understanding and great care was taken to ensure that the students saw the relevance of material being covered and to relate it to their prior learning and everyday experiences. Where the approach was less successful there was an overemphasis on the use of simple unexplained techniques or tricks to arrive at the answer to questions. While this approach meant that the students successfully completed the assigned tasks, it did little to enhance their mathematical knowledge or their understanding of the theory underpinning the techniques they were using.

The integration of ICT and the use of solid models and wall charts served to deepen the student's understanding of Mathematics in a lesson exploring the properties of three-dimensional figures. The students worked in small groups measuring the dimensions of the various shapes and calculating quantities such as the surface area and volume and discussing their findings. Presentation software was used to illustrate worked examples while the students could reference the relevant formulae from the many wall charts around the room. The use of these resources meant that the teacher was free to circulate between the different groups providing support to those experiencing difficulties and challenging the more able. This approach to student-centred learning and teaching for understanding should be adopted by all members of the department.

Classroom management, student engagement and behaviour were very good. The enthusiastic approach adopted by the teachers was matched by that of the students who asked worthwhile questions and proposed alternative approaches to problem solving. The use of innovative seating arrangements, involving in one instance a break-out area for focussed group work, contributed greatly to the interactive nature of the lessons and to the pervasive positive atmosphere.

In almost all of the lessons visited, the quality of student learning was very good. The students successfully carried out the different tasks assigned during the lessons, displayed a good knowledge of the material being covered and expressed themselves using appropriate mathematical language. The quality of the written work in the students' homework copybooks and performance of students in class tests and formal examinations was also very good.

ASSESSMENT

Assessment practices in Mathematics are very good. Homework is regularly assigned and corrected. In almost all cases, the students' copybooks contained corrections, amendments and written feedback. This good practice is in line with the school's homework policy and should be uniformly adopted across the department. The mathematics department should consider customising the school's homework police to reflect the subject's particular requirements. In particular, emphasis should be placed on the role of homework in providing opportunities for independent and collaborative learning and to allow students to develop their understanding of key mathematical operations. Furthermore, the role of the student in amending and correcting their own work should also be specified. The amended policy should ultimately be published on the school's VLE.

Formal common examinations are held in November and May each year. Common papers, corrected in accordance with an agreed marking scheme are provided where appropriate. Reports

issue to parents following these formal assessments, while student performance in class tests informs an additional report that issues in February each year. Management engages with students to encourage and enable them to set realistic targets for their performance in the formal and informal assessments and in planning the level they will ultimately follow in the certificate examinations.

Very good practice in relation to recording student attainment and attendance was evident. Roll call was taken at the beginning of each class and recorded in the teachers' diaries. In addition the teachers' diaries also contained comprehensive records of the performance of students in class and in formal tests. Very good use was also made of the student diary to facilitate ongoing communication with parents.

SUMMARY OF MAIN FINDINGS AND RECOMMENDATIONS

The following are the main strengths identified in the evaluation:

- The quality of teaching and learning was, in almost all cases, very good.
- Mathematics enjoys the strong support of management. The department is well resourced and the timetabling provision for Mathematics is very good.
- The approach to integrating ICT into teaching and learning Mathematics and to engaging the wider school community with Mathematics is innovative and praiseworthy.
- Subject department planning in Mathematics is very well managed.
- Practices in relation to homework and assessment are very good.

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

- The existing entrance assessment procedures should be bolstered by the inclusion of a mathematics competency test designed by the mathematics department in partnership with the feeder primary schools.
- Formal referral and reporting procedures relating to students in need, or in receipt, of learning support in Mathematics should be established and a wider range of interventions, including team teaching and in-class co-operative support should be utilised.
- The approach to student-centred learning and teaching for understanding evident in the majority of Mathematics classes should be adopted by all members of the department.

Post-evaluation meetings were held with the teachers of Mathematics 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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