Subject Inspection of Mathematics
REPORT

St Aidan’s CBS
Whitehall, Dublin 9
Roll number: 60481I

Date of inspection: 10 February 2011
SUBJECT INSPECTION REPORT
This report has been written following a subject inspection in St Aidan’s CBS. 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 two days during which the inspector visited classrooms and observed teaching and learning. The inspector interacted with students, examined students’ work, reviewed school planning documentation and had discussions with the principal and members of the mathematics department. Following the evaluation visit, the inspector provided oral feedback on the outcomes of the evaluation to the principal and the mathematics 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
Provision for Mathematics is good in St Aidan’s CBS. The time allocation is in line with or above syllabus guidelines. There are five periods per week at junior cycle, three periods per week in Transition Year (TY) and six periods per week for each of fifth and sixth year classes. Lessons in all years are well spread throughout the week, facilitating daily progress in Mathematics, and the positioning of lessons is appropriately balanced between mornings and afternoons. The subject is currently offered at higher and ordinary levels only, although some students sit foundation-level papers in the certificate examinations. It is recommended that a foundation-level class be formed at senior cycle so as to more fully cater for the full range of students’ abilities.

From second to sixth years, all mathematics classes are concurrently timetabled within year groups. This appropriately supports the formation of groupings of different levels and the movement of students between levels. Also, additional teachers have been allocated in four of the six year groups in order to facilitate the creation of smaller mathematics classes in which students can receive increased levels of individual attention. Furthermore, it was reported that a number of teachers offer additional mathematics lessons outside normal class time. Thus, the school’s commitment to optimising students’ experiences of Mathematics is clear.

First-year classes are taught as mixed-ability groups, suitably allowing students settle into their new environment prior to decisions being taken regarding their level of study. From second year, division into higher and ordinary levels takes place, based on students’ performance in end-of-term examinations throughout first year. Currently mathematics classes from second to sixth years are streamed. School management is advised to keep this method of class formation under review so as to ensure that the needs of all students, particularly those of average to lower mathematical ability, are being met in the most effective manner.

School management decides the levels at which teachers teach Mathematics. In line with good practice, continuity is maintained from second year to third year and from fifth year to sixth year.
There is rotation of levels between mathematics teachers, with four members of the team currently rotating the Junior Certificate higher-level course and two members currently rotating the Leaving Certificate higher-level course.

A number of members of the mathematics team are specialists in subjects other than Mathematics. It is recommended that a review be carried out to see if this is the most effective use of such teachers’ expertise. Teachers wishing to continue to teach Mathematics but who do not hold a recognised qualification in the subject should undertake further study.

The school has in place an effective system to identify students who require additional support in Mathematics. This includes an analysis of performance in the school’s incoming assessments, information gathered from feeder primary schools and referral from subject teachers. Support is provided in class and through withdrawal, the latter normally from a subject not studied by the student. The effects of all supports would be maximised with the acquiring of expertise within the mathematics team in the area of educational support. A range of interventions could then be explored and appropriate guidance provided to teachers.

Requests for the purchase of resources to support the teaching and learning of Mathematics are channelled through the subject co-ordinator, who can submit a list to school management on an annual basis. A range of materials and equipment has been identified by the mathematics team and should be prioritised for immediate purchase. Teachers currently have access to two fully-equipped computer rooms, an interactive whiteboard, internet connection and desktop and laptop computers. Plans are also in place to equip most classrooms with digital projectors.

Teachers are supported and facilitated in engaging in continuing professional development (CPD) and all members of the mathematics team have participated in Project Maths in-service courses offered. In addition, some members of the team have participated in CPD activities outside school hours, indicative of a strong commitment to the subject and to their students. The board of management supports teachers’ further study through partial funding. It is notable that one of the mathematics teachers is currently pursuing further study in Mathematics.

Co-curricular mathematics activities are supported by some members of the teaching team. However, their extension is encouraged so as to provide students with valuable opportunities to experience Mathematics outside the classroom setting.

**PLANNING AND PREPARATION**

The subject department structure is long established in the school and the role of co-ordinator, which includes convening department meetings, co-ordinating the preparation of schemes of work, and drawing up lists of required resources, has been undertaken by a senior teacher since 2002. It is recommended that the role is rotated among all mathematics teachers, perhaps every two years, allowing the department to benefit from the different strengths and ideas of each of its members.

Formal meetings of the mathematics team are facilitated by school management and take place approximately five times during the school year. Informal discussions take place on an ongoing basis. In line with good practice, minutes of meetings are recorded and maintained with the department plan. Minutes of meetings, dating back to August 2005, indicate collaboration and
discussion on areas including the preparation of assessment instruments, class-group formation, open evening, and, more recently, the introduction of Project Maths. It is recommended that time be set aside at each future meeting of mathematics teachers for the sharing of experiences and expertise in methodologies that actively engage students in their own learning. A starting point for this collaboration could be the Project Maths teaching and learning plans, which could be trialled by individual members and reported back to the full team.

Significant work has gone into developing a subject plan that includes a mathematics-specific mission statement, assessment and homework procedures, information and communications technology (ICT) policy and information on mathematics supports for students. Long-term schemes of work have been developed for each year group and level. There is one senior-cycle scheme in which the syllabus is the main reference point, with associated learning objectives indicated and assessment modes and additional resources identified. This is very good practice and in reviewing other schemes, it is recommended that this format be followed. Commendably, also, the first-year scheme of work clearly incorporates the common introductory course developed in conjunction with Project Maths.

TY Mathematics is currently taught by two teachers who work closely together. The long-term scheme of work is common, with differences in level being accommodated through different depths of coverage. The plan indicates a rich and enjoyable programme for students that fully supports the ethos of the transition year.

Almost all teachers made individual planning and preparation materials available during the inspection. These included student worksheets, teacher notes, internet downloads, games and activities and were indicative of thorough preparation and planning by many teachers.

TEACHING AND LEARNING

The inspector observed seven lessons over two days covering all available year groups and three of the four programmes in the school. The quality of learning and teaching in the majority of these lessons was good or very good. All teachers presented lesson plans and many teachers prepared additional materials for students’ use. Most teachers followed the good practice of explicitly sharing the lessons’ objectives with students thus providing a focus for the work from the outset.

Teachers made good efforts to engage students using active methodologies such as group work, practical demonstration and practical experiment. In many lessons, students’ written work and answers given to questions posed provided evidence of learning taking place. However, students were not always sufficiently challenged and progress was not made in all lessons. Teachers must take account of work previously learned and focus the lesson on progressing from that. In addition, lesson planning should acknowledge the different levels of ability in classes and prepare accordingly. This is particularly important in ordinary-level groups, where the progress of more-able students may be held back unnecessarily.

There were some examples of the effective use of probing questions, challenging students’ understanding and guiding them to the solutions to problems. The use of such questioning methods by all teachers would deepen students’ mathematical understanding and is recommended. There was good use of topic-specific terminology by teachers and some instances
where this was also the case for students. Students’ mathematical communication skills should be further encouraged through teachers requiring that complete mathematical sentences be used when asking or answering questions in class.

In almost all lessons observed, students engaged fully in the work at hand, at times clearly enjoying it. Teacher-student interactions were almost always characterised by mutual respect and a relaxed rapport. Classroom management was almost always effective and the learning environment was affirming and supportive of students’ efforts.

**ASSESSMENT**

There is a good level of monitoring and communication of students’ progress, with three main assessment points each year for first and second year students, following which written reports are issued. Fifth years have formal assessments twice in the year and third and sixth years sit mock examinations in early spring and their certificate examinations in the summer. Assessment for all year groups usually takes the form of written tests or examinations, but strategies in TY are appropriately varied and include assignments and participation in class work. In addition, the good practice of administering common end-of-term examination papers, within levels, is in place in first, second and fifth years. This supports, on an ongoing basis, students’ choice of the level at which they study Mathematics.

Short-term progress is assessed generally through the assigning and marking of class work and homework. A review of a random sample of students’ copy books indicated work that was relevant to programme and syllabus, and, with some exceptions, reasonably well presented. However, students need to be continuously reminded of the importance of marking their work and noting corrections.

Data on achievement levels in the certificate examinations is made available by school management to the mathematics team each year. The mathematics team has used these data to identify strengths and areas for development, in line with good practice.

**SUMMARY OF MAIN FINDINGS AND RECOMMENDATIONS**

The following are the main strengths identified in the evaluation:

- Provision for Mathematics is good; time allocated is in line with or above syllabus guidelines, classes are concurrently timetabled from second year and additional teachers have been allocated to four of the six year groups for Mathematics.
- Significant work has gone into developing a subject plan that includes mathematics-specific documents such as a mission statement, assessment and homework procedures, information and communications technology (ICT) policy as well as information on mathematics supports for students.
- The TY plan indicates a rich and enjoyable mathematics programme for students, that fully supports the ethos of the transition year.
• Teachers made good efforts to engage students using active methodologies such as group work, practical demonstration and practical experiment.
• The learning environment was affirming and supportive of students’ efforts.

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

• The method of class formation should be kept under review so as to ensure that the needs of all students are being met in the most effective manner.
• The mathematics team should identify a member to acquire expertise in the area of educational support.
• Time should be set aside at future meetings for the sharing of experiences and expertise in methodologies that actively engage students in their own learning.
• Care must be taken to ensure that students are always sufficiently challenged and that progress is made in all lessons.
• More use should be made of probing questions so as to deepen students’ mathematical understanding.

A post-evaluation meeting was held with the principal and the mathematics teachers 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 St. Aidan’s CBS welcomes the report on the Subject Inspection of Mathematics and wishes to acknowledge the many strengths identified in the report’s findings.

The Board is particularly pleased that the affirming and supportive learning environment was recognised and commended.

The effective use of questioning to challenge students and guide them to the solution of problems which was noted by the Inspectorate is welcomed.

The Board are delighted that the TY Mathematics programme was acknowledged for being ‘a rich and enjoyable programme for students that fully supports the ethos of the transition year’

It is pleasing that the report highlights a good level of monitoring and communication of students’ progress to parents.

The Board wish to acknowledge the hard work and commitment of the Maths Department and looks forward to working with them in implementing the recommendations highlighted in the report.

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

The recommendations in the report will be addressed through the Maths department action plan for the coming year.

The Senior Management team will facilitate and support this work as appropriate.