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Ms J Cullen  
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Dear Ms Cullen

Ofsted 2008-09 subject survey inspection programme: mathematics

Thank you for your hospitality and co-operation, and that of your staff, during my visit on 23 and 24 February 2009 to look at work in mathematics.

As outlined in our initial letter, as well as looking at key areas of the subject, the visit had a particular focus on the effectiveness of the school's approaches to improving the quality of teaching and learning in mathematics.

The visit provided valuable information which will contribute to our national evaluation and reporting. Published reports are likely to list the names of the contributing institutions but individual institutions will not be identified in the main text. All feedback letters will be published on the Ofsted website at the end of each half-term.

The evidence used to inform the judgements made included interviews with staff and students, scrutiny of relevant documentation, analysis of students' work and observation of lessons.

The overall effectiveness of the subject, mathematics, was judged to be good.

Achievement and standards

Achievement in mathematics is good and standards are average.

- Students join the school with attainment on entry that is well below average. They make good progress during Key Stage 3 to reach standards that have increased greatly in the last five years although they remain below average. Students also make good progress in Key Stage 4 where standards rose from being exceptionally low in 2006 and 2007 to below average in 2008. The proportion of students attaining grades A and A\* was particularly low. The school has identified that entry for GCSE statistics, which was taught during mathematics lessons, contributed to this by taking away too much time from mathematics. It has now dropped statistics from the main timetable. The school's data show that more students in current Year 11 are on track to reach the higher

grades, even though their attainment on entry was lower overall than the 2008 cohort.

- Students enter the sixth form with below average attainment. In 2008, they made inadequate progress. The school has identified reasons for this and made changes that have led to improvement so that progress is now satisfactory. Standards are below average.
- Boys reach lower standards than girls in Key Stage 3 but the gap closes at Key Stage 4. Lower prior-attaining girls make particularly good progress, due to the school's very careful focus on them, as do students with learning difficulties or disabilities. All are entered for GCSE.
- The students work well in lessons but there are some occasions where learning is slowed by the off-task behaviour of a few. They enjoy mathematics more as they progress through the school and as they prepare for national assessments. However, they do not develop the degree of independence during Key Stage 4 that they need to make quick progress in the sixth form.

### Quality of teaching and learning of mathematics

The quality of teaching and learning of mathematics is satisfactory.

- There is much good teaching but also too much variability. Staffing changes have led to a high number of new teachers, including some temporary ones. There is some satisfactory teaching and occasionally some that is inadequate. Staff work well to motivate students and achieve a good level of behaviour.
- The good teaching is characterised by good planning based on a thorough knowledge of the students. It involves them in active learning that helps build concepts and improve their thinking, and gives them group work and games that help their reasoning. Students speak of enjoying these lessons, finding them fun. Information and communication technology (ICT) is used well to convey concepts and to motivate students through quick-fire activities. Teachers ask enabling questions that elicit students' misconceptions and then help to overcome them. They involve students in modelling answers for their peers, for example on the interactive whiteboard or through acting them out.
- In the weaker lessons, work does not meet every student's needs well enough so some waste time doing easy work or waiting when they have finished. This can contribute to off-task behaviour. Not all students are involved in the activities or the teacher does not check well enough how well they are doing, so leaves errors unnoticed. Teachers use a lecturing style where students listen to small steps broken down so they do not have to solve the problem or develop skills in using and applying mathematics themselves. Rules rather than conceptual approaches to topics are given; students state they do not know why the rules work.
- Students know the level of their work and receive some guidance on what to do to improve but this is variable, with some students not following it up.. They know the learning objectives for a lesson and make some assessment of how well they are achieved, but are not involved sufficiently in making assessment of their progress through the National Curriculum levels.

### Quality of the mathematics curriculum

The quality of the mathematics curriculum is good.

- The curriculum is tailored well to students' needs. It motivates and supports them to make good progress. All students take GCSE in Year 10 and then retake it when they are ready to reach a higher grade. This gives them the chance to have early success. Those who are not on track to make two levels of progress, or might just miss attaining five grades A\* to C including English and mathematics, are identified and supported to reach their targets. In Years 7 and 8, the setting up of a small group of students with learning difficulties or disabilities or who work at very low levels is successfully increasing their confidence and performance. In the sixth form, students can retake GCSE or study AS or A level.
- Schemes of work have been revised and ICT resources linked to them, although there is no guidance to support teachers on conceptual introductions to each topic. A greater emphasis on question-level analysis in assessments has led to more focused work on areas of weakness and informing students of these areas. Teachers have ready access to a wide range of revision and other materials. An online system is increasingly used for teaching and homework and CD-ROM materials are available, although not all students have them. Students also report varying degrees of access to hands-on use of ICT in different classes.
- Through cross-curricular work with physical education, the sports specialism provides good opportunities to handle data in a range of active contexts. In Year 7, good steps have been taken with primary schools to increase continuity and broaden the curriculum. Skills in using and applying mathematics are built through problem-solving activities. Nevertheless, there is not a structured development of them throughout the years or a record of progress through the levels.
- Enrichment activities include trips and clubs. A wide range of additional support and extension is provided and students keenly attend much of it. The department evaluates the impact of this and amends provision accordingly.

### Leadership and management of mathematics

The leadership and management of mathematics are good.

- Good leadership and management have led to raised standards and improved progress. The director of mathematics has skilfully developed the quality of teaching and of leadership and management for a large number of new staff in a context of staffing turnover and some recruitment difficulties.
- The director of mathematics has created a good team spirit in which all work together well in a supportive atmosphere. Staff have a shared desire for the students to do well and contribute to a number of curriculum developments and decisions.
- Monitoring of lessons and joint observations are accurate although sometimes they do not focus enough on students' understanding or lead to the identification of areas for development.
- Evaluation identified key areas where improvement was needed and changes have been made to teaching and the curriculum. Nevertheless, planning has not specified the key areas for development, or provided measurable success criteria. There is room for a greater focus on improving teaching quality and for clearer prioritisation as well as for sharing involvement and responsibility for contributing to impact more transparently amongst all staff. Plans do not build well on the school's internal evaluations and monitoring.

- The specialist sports college status has contributed to cross-curricular work, including contexts for data handling, and greater links with primary schools, such as through the 'sports stack' project. While all students have been entered for GCSE, the challenging target of 100% reaching grade G has not been met.

Subject issue: the effectiveness of the school's approaches to improving the quality of teaching and learning in mathematics

- The school has used the 'Teach First' scheme well to bring new staff into the department, and to develop skills in leadership and management as well as in teaching. Strong mentoring, together with team teaching and good quality reflection, has helped teachers get off to a good start.
- New staff are supported through middle or senior managers working alongside them in each lesson when they start so they can build up their relationships with the students and not need to focus mainly on behaviour management. This means they can show their teaching strengths early to the students.

Areas for improvement, which we discussed, included:

- raising the proportion of good teaching, through increasing the focus on students' understanding, thinking, and responsibility for their own learning with a greater emphasis on self-assessment of progress towards levels or grades
- sharpening lesson monitoring and the identification of areas for development to involve teachers more in moving their own teaching forward
- creating core activities with guidance to ensure entitlement to conceptual introductions and access to hands-on use of ICT
- identifying in improvement planning key priorities and measurable success criteria based on impact.

I hope these observations are useful as you continue to develop mathematics in the school.

As explained in our previous letter, a copy of this letter will be sent to your local authority and local Learning and Skills Council and will be published on the Ofsted website. It will also be available to the team for your next institutional inspection.

Yours sincerely

Gill Close  
Her Majesty's Inspector