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Mr A Jarvis  
Headteacher  
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Dear Mr Jarvis

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 01 and 02 October 2008 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 eight lessons.

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

#### Achievement and standards

Achievement in mathematics is outstanding and standards are very high.

- Standards at GCSE and in National Curriculum tests are very high. Students arrive at the school with standards which are well above average and make excellent progress in all years. Achievement is outstanding; almost all students attain Level 8 in tests at the end of Year 9 and, in 2008, over four-fifths attained grade A\*, and the rest grade A, at GCSE. Alongside their GCSE, about half complete the first unit of an AS level and about a quarter study an additional mathematics course. In both, most attain grade A.
- Achievement post-16 is also outstanding. In 2008, over four-fifths of a very large entry attained grade A at A-level. About half were also entered for further mathematics with nearly three-quarters of them attaining grade A.

- Students are also very successful in national mathematical competitions. Many successfully enter the various UK Mathematics Challenges with individuals regularly coming in the top 50. St Olave's is regularly placed in the 'Top 10' schools in the UK Team Challenge and are the defending National Champions.
- Students enjoy mathematics. Exceptionally high numbers opt to study mathematics and further mathematics at A level; currently 90% and 70% respectively of Year 12. About 20 go on to read mathematics at university every year and many more study related subjects.

### Quality of teaching and learning of mathematics

The quality of teaching and learning of mathematics is outstanding.

- The quality of learning is outstanding because of students' exemplary attitudes and because they receive teaching which is usually good and often excellent.
- A large department of subject specialists contains a good mix of youth and experience. Their enthusiasm for mathematics is infectious. 'Teachers,' as one student said, 'are passionate about the subject and want you to be passionate about it too.'
- Teachers use skilful questioning to encourage students to explain their reasoning. Well-structured lessons are enhanced by excellent use of information and communication technology (ICT), including computer-aided whiteboards, a wealth of software and graphical calculators.
- Students appreciate opportunities to investigate topics. One said, 'I love discovering for myself. It is one of the most important aspects of learning.' Year 8 students spoke enthusiastically of activities which required them to apply their knowledge collaboratively. One said, 'If it's a huge problem you've solved together you really feel you've achieved something.' An excellent example was observed, where a Year 7 class used their knowledge of prime factors to solve a problem on family trees. There was much lively debate, resulting in a sensible division of tasks. In the following lesson, the students gave group presentations comparing their approaches to the problem. However, not all teachers encourage sufficient discussion and collaboration between students.
- Assessment is rigorous. Individual whiteboards are used well. One student said, 'They are cool. They make teaching more interactive and mean you, and the teacher, know straightaway whether you understand.'

### Quality of the mathematics curriculum

The quality of the mathematics curriculum is outstanding.

- Schemes of work are comprehensive and interactive with hyper-links to a wealth of resources, many of which have been produced within the department. Each year group has a member of staff who oversees their mathematical work and ensures new resources and good ideas are shared effectively. An extensive collection of software, lesson presentations and revision materials are available to students to access at home through the school's virtual learning environment (VLE).
- The breadth of the curriculum is excellent. All students are able to participate in national competitions, which develop their capacity to solve problems. Those in the upper three ability groups in Year 11 study the first core unit of an A-level or a free-standing course in additional mathematics alongside their GCSE. This does

not exclude those in the other groups from choosing mathematics post-16 and many do. There has been a dramatic rise in the proportion studying further mathematics, about three-quarters of those opting for mathematics in Year 12.

- Whilst students experience a good range of activities, the department has rightly identified as a key target, 'to increase the proportion of the curriculum given over to investigational work and to the applications of mathematics.' Whilst most students agree that greater emphasis could be placed on the subject's relevance, one said, 'For me, making it applicable is not important.' Some have developed a real love of pure mathematics for its own sake.
- The school's specialist status in mathematics and computing has had a massive impact, especially in the use of ICT within mathematics and the development of the school's VLE. The school's reputation in mathematics has attracted a substantial number of students from other schools post-16.

### Leadership and management of mathematics

The leadership and management of mathematics are outstanding.

- Leadership of the department is enthusiastic. A very able head of department leads a highly skilled team, with effective key stage and year team coordinators. There is a good mix of experience, including some highly skilled mathematicians, some with a background in industry or commerce and some with experience of teaching in primary schools. Frequent departmental and team meetings concentrate on discussing teaching and learning.
- Departmental self-evaluation is extremely rigorous and includes very thorough analyses of examination results. Tracking of students' progress is also exemplary. Good intervention strategies, including using sixth-form students as 'mathematical buddies' for younger students, are in place to address any misconceptions.

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

- The school's approaches to improving the quality of teaching and learning in mathematics have been highly effective. In response to the key issue in its last inspection, to raise the quality of all lessons to that of the best, the school has linked with other successful selective schools to share excellent practice. Alongside this, the mathematics department has received intensive training on all aspects in the use of ICT and has worked on a project with local primary schools to improve teaching across Key Stages 2 and 3.
- The school's belief that everyone can achieve and improve if they enjoy their work is exemplified by the practice of the mathematics department. Despite its enormous success, teachers are keen to develop further initiatives.

Areas for improvement, which we discussed, included:

- encourage further opportunities for collaboration, discussion, problem solving and appreciation of the applications of their mathematics in all years.

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 will be published on the Ofsted website. It will also be available to the team for your next institutional inspection.

Yours sincerely

David Bain  
Additional Inspector