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Mrs J Robinson  
Headteacher  
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Dear Mrs Robinson

Ofsted 2009-10 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 June 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.

- Students arrive at this selective school with standards which are well above average. They make excellent progress, particularly during Key Stage 3. In 2008, 91% attained Level 7 or better in National Curriculum tests, with 43% gaining Level 8. At GCSE, over two-thirds attained the highest grades A\* or A, with about a third gaining each grade and most of the rest grade B.
- Achievement post-16 is good. Standards are very high with about three fifths of those entered at A level attaining grade A. However, only a few students complete a full A level in further mathematics, although increasing numbers are taking it up to AS level.
- Students enjoy mathematics. Their attitudes towards the subject improve as they move through the school, with many indicating that they had not liked it when

younger. Whilst some say that they prefer more creative subjects, in class many are enthusiastic and behaviour is exemplary. However, despite large numbers studying mathematics post-16, few choose to do so at university. One Year 12 student said, 'It is quite scary to think of doing nothing but mathematics for three years.' Others had rejected it as a choice because they were uncertain what jobs it could lead to, other than teaching or finance.

## Quality of teaching and learning of mathematics

The quality of teaching and learning of mathematics is good.

- Currently, mathematics is taught by nine staff, only four of whom teach full time within the department. The others are a mix of part-time teachers, senior managers and one who also teaches within the science department. As highlighted in a recent review by senior leaders, 'positive and supportive relationships' are a strength of the department. Some exceptionally talented teachers are innovative and effectively support the improving practice of their colleagues.
- Many students experience outstanding teaching. For example, in two sixth-form lessons seen, students worked collaboratively. In one, they worked in pairs to match trigonometric expressions, whilst in the other they worked as a large group to solve a complex matching activity related to vectors. In the latter class they then worked through a challenging example using practical apparatus. In both, discussion during the activities highlighted any gaps in their knowledge and supported the development of their conceptual understanding. In these, and other outstanding lessons, students are engaged in a variety of challenging activities. However, in some lessons too much time is spent completing repetitive exercises. As a Year 8 student said, 'It can be a bit tedious.'
- Generally, teachers use skilful questioning to encourage students to explain their reasoning. Some excellent use is made of computer-linked whiteboards to enhance students' understanding. In one Year 8 class, groups of students gave good quality presentations based on their analysis of data to decide where to place speed cameras. They used a variety of graphical representations to enhance their arguments. This and other tasks from the Assessing Pupil Progress (APP) project are being trialled to aid students' facility in applying their mathematics.
- Assessment is good. Teachers' marking is thorough, as is the tracking of students' progress and use of various forms of self and peer assessment. However, strategies which help identify students' misconceptions are not embedded in all lessons.

## Quality of the mathematics curriculum

The quality of the mathematics curriculum is good.

- Schemes of work are comprehensive and make appropriate references to a variety of resources including National Strategy materials and information and communication technology (ICT). Schemes are not yet interactive and, whilst some teachers use a range of stimulating activities, some are too reliant on exercises from the chosen textbook. Post-16 schemes include good sections on suggested methodology.
- The breadth of the curriculum is outstanding. The first core unit of AS level mathematics is offered from Year 10, alongside students' GCSE course, to

challenge the most able. Year 10 students are very positive about this. As one said, 'It is a lot harder, but makes topics at GCSE so much easier.' Most of those who sit this unit in Year 11 then complete an AS in further mathematics alongside their A level in Years 12 and 13. However, few complete two A levels in the subject. A mix of linear and modular GCSE courses is used effectively to meet the needs of different groups of students.

## Leadership and management of mathematics

The leadership and management of mathematics are outstanding.

- Leadership of the department is enthusiastic and innovative. The outstanding practice of departmental leaders is shared effectively with less experienced colleagues, both within the department and across the school. They, and senior leaders, are aware of the strengths and weaknesses within the department and provide appropriate support and training to others. Self-evaluation includes very rigorous analyses of examination results and records of lesson observations which substantiate judgements well.

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

- The school's new senior leadership team is placing greater emphasis on the development of creativity and independent learning across the school to, as you said, 'Get girls to think outside the box.' The school has recently received a second specialism as a training school. The mathematics department includes a training mentor and head of year mentor.
- Alongside its involvement in national initiatives, such as APP, the departmental innovations include one which provides resources for parents to support their daughters. All these initiatives, within an atmosphere of mutual support, are improving the quality of learning and raising achievement.

Areas for improvement, which we discussed, included:

- continue to develop initiatives which share good practice and support the school's emphasis on creativity and problem solving, in order to increase further the proportion of outstanding lessons experienced by students
- establish opportunities for students to appreciate possible career paths using mathematics to increase the proportion studying further mathematics and going on to university to read the subject.

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