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Mr D Kelly  
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Dear Mr Kelly

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 2 and 3 December 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 satisfactory.

#### Achievement and standards

Achievement in mathematics is satisfactory overall. Standards are broadly average.

- Students arrive at the start of Year 7 with standards which are a little below average. Recently, an increasing number have joined in other years, particularly from Eastern Europe. The presence of selective schools locally reduces the proportion of students who arrive with standards that are above average. Standards at GCSE and in National Curriculum tests have risen in recent years, approaching the national average. In 2007, nearly half attained grades A\* to C at GCSE, but this fell to a little over two-fifths in 2008. Differences in the performance of boys and girls vary widely between year groups. Thus, although achievement of some groups is good some years, achievement overall is satisfactory.

- Some groups also enter statistics at GCSE. In 2007, the highest ability group entered and all attained grade C or better. In 2008, the top two groups entered, with just over half attaining these higher grades. This increase in entry may partly be responsible for the decrease in higher grades attained in mathematics.
- Achievement in the sixth form is inadequate. Half those entered for AS level in the last two years were ungraded. The small number who complete an A level achieve satisfactory results.
- Students' attitudes towards mathematics vary greatly, depending on how well they understand and the quality of teaching they receive. One student said, 'Achievement really depends on attitudes. If you work hard, you succeed. Some don't.' Behaviour, whilst mostly good, is challenging with some groups.

### Quality of teaching and learning of mathematics

The quality of teaching and learning of mathematics is satisfactory.

- The quality of teaching varies widely. Whilst some is very good, a minority is inadequate. Although most teachers plan for a good range of activities, many lessons are over directed by the teacher with the emphasis placed on learning mathematical routines rather than developing students' conceptual understanding. For example, a Year 8 lesson on the sum of the angles in a triangle required students to add two numbers and subtract from 180 repetitively and colour their answers. By contrast, students in another Year 8 class were enthusiastic in a lesson on fractions because the teacher drew creatively from popular culture to enliven the activity and increase understanding.
- Students are encouraged to collaborate in pairs in most lessons. Whilst some recognise that they learn best when able to discuss work, others prefer to work alone. One said, 'If I work with a partner, I tend to copy.' The teachers recognise that the collaborative skills of such students are under-developed. Students are encouraged to work through examples in front of the class, but often this is done in silence without them explaining their reasoning to others.
- Limited use is made of information and communication technology (ICT). All rooms have a projector linked to a computer. Whilst some teachers use this to display well-prepared presentations, the quality of some software used is poor.
- Opportunities for students to apply their mathematics are limited. In a lesson on the cosine rule, one student asked, 'When would we ever do this in real life?'
- Assessment procedures are sound. Teachers' marking gives some good guidance to students on what to do to improve. Good use is made of a 'traffic-light' system of self-assessment but devices, such as mini-whiteboards, are rarely used to assess students' immediate responses. Consequently, some teachers are slow to recognise students' misconceptions.

### Quality of the mathematics curriculum

The quality of the mathematics curriculum is inadequate.

- Schemes of work are sound and include some detailed lesson plans. These are supplemented by occasional themed days. For example, during the inspection, Year 7 students were participating in a lively problem-solving day. Although these days encourage students to use and apply their mathematics, opportunities within other lessons are limited. Students make little use of ICT, and have no experience of either graph-plotting packages or graphical calculators.

- The school has experimented with accelerating the mathematics curriculum, with all of the current Year 9 taking National Curriculum tests at the end of Year 8 and some students sitting GCSE at the end of Year 10. It has also increased the proportion studying statistics within mathematics lessons. It is reviewing this practice, to ensure all students concentrate on attaining the highest grades possible in GCSE.
- The school is also reviewing grouping arrangements. The current system is based on diagnostic tests in both English and mathematics and this results in some students being placed in inappropriate ability groups for mathematics. Some post-16 groups are too small, because students are given the option of studying either statistics or mechanics.

### Leadership and management of mathematics

The leadership and management of mathematics are satisfactory.

- The head of department is an effective manager, who leads a very experienced team, some of whom have taught at the school for most of their careers. She has effectively focused on raising achievement through rigorous tracking of students' progress and a broad range of intervention strategies, such as booster classes and holiday projects.
- Monitoring of teaching and scrutiny of students' books and teachers' plans is becoming more rigorous. However, significant weaknesses in the curriculum and some in the quality of teaching and learning have not been addressed coherently.

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

- Senior leaders have focussed on raising achievement through structural changes, such as an accelerated curriculum, and intervention strategies. A part-time intervention manager has been appointed to work with targeted groups of students across the ability range. A regular system of departmental reviews is being introduced this year.
- Good support is provided to teachers where individual training needs are identified. The school's focus on assessment for learning has improved the quality of teachers' marking. However, insufficient focus has been placed on a coherent strategy to improve the quality of teaching and learning.

Areas for improvement, which we discussed, included:

- ensure all teachers adopt a range of teaching approaches that help develop students' understanding through investigation, discussion, collaboration and opportunities to explain their reasoning to others
- review the curriculum, ensuring students have sufficient time to develop and consolidate their mathematical understanding, in order to raise their achievement
- review the curriculum offer post-16, ensuring students study courses which are appropriate for them and which enable them to achieve success
- ensure all students experience sufficient opportunities to use ICT within lessons.

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