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Dear Mrs Fenn

Ofsted 2007-08 subject survey inspection programme: mathematics

Thank you for your hospitality and co-operation, and that of your staff, during my visit on 17 and 18 June 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 seven lessons.

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

Achievement and standards

Achievement in mathematics is satisfactory. Standards are above average.

- Students arrive at the school with standards which are above average, overall, and make satisfactory progress in all years. Over two thirds attain Level 6 or better in National Curriculum tests in Year 9 and a similar proportion grade C or better at GCSE. However, not enough attain the highest grade, A\*, at GCSE.
- Achievement post-16 is also satisfactory, overall. Results at A Level are above average, with over two fifths attaining grade A, and are improving at AS Level, although too many remain ungraded. Increasing numbers opt to study mathematics post-16 and the achievement of the small number who study further mathematics is good.

- Students' attitudes towards mathematics are generally positive. Most behave very well. They enjoy being challenged. As one said, 'I like the logic of the subject and the different ways of getting an answer.' But others indicated that lessons can become boring and feel, as one said, 'It could be more interactive and creative.'

### Quality of teaching and learning of mathematics

The quality of teaching and learning of mathematics is satisfactory.

- Teaching contains many good features. All teachers have good relationships with students and manage classes well. Students appreciate the individual support they receive. As one said, 'Teachers explain well. They help you until you get it.' However, lessons are often over teacher-directed and learning is no better than satisfactory because students remain too passive. Students collaborate well, but recognise they could have more opportunities to do so. As one said, 'What you discuss with friends sticks in your mind more.'
- Teachers' explanations are clear and there is some good use of searching questions which require students to explain their reasoning. Sometimes, however, responses are accepted only from those who volunteer answers. In general, students experience insufficient variety in lessons, with the emphasis placed on learning mathematical routines rather than developing conceptual understanding. For example, in a lesson on estimation, students doggedly completed the routine they had been taught despite it making some examples far more complex than they needed to be.
- Some teachers use computer-linked whiteboards effectively. For example, good use of graphical software was observed. However, too often, as students say, 'they are just used as posh whiteboards,' and the interactive features which could enable students to explain their reasoning more effectively are ignored.
- Opportunities for students to appreciate the applications of mathematics are limited. However, a good example was observed with a Year 7 class who were studying probability related to games they had developed for an extended learning day focused on 'Beijing and the Olympics.'
- Assessment procedures are good. Progress is tracked carefully and good use is made of self-assessment by students.

### Quality of the mathematics curriculum

The quality of the mathematics curriculum is satisfactory.

- Schemes of work vary in quality. Some contain good advice on approaches to teaching, including key questions, references to information and communication technology (ICT) and investigative activities, but these are not used effectively across all classes. Insufficient opportunity is given, for example in departmental meetings, to sharing examples of good practice and effective, innovative approaches to teaching.
- The breadth of the curriculum post-16 is good. Students study a choice of units, including statistics, mechanics and further mathematics. Breadth for the most able in other years is less well developed, although there are good enrichment activities for gifted students including national competitions. The department's rationale for rejecting early entry at GCSE is sound, but an alternative deepening

of the curriculum offer has yet to be developed effectively to raise the proportion attaining the highest grade.

## Leadership and management of mathematics

The leadership and management of mathematics are satisfactory.

- The respected head of department leads a team of mathematics teachers, which includes a good mix of experience. His management of the department is good. Tracking of students' progress is effective and departmental self-evaluation includes thorough analyses of examination results. He is well supported by a line manager who has an accurate view of the department's strengths and weaknesses.
- Despite a focus on raising achievement through targeted support to students, insufficient attention has been given to improving the quality of teaching and learning consistently across the department. Consequently, the good practice which exists is not always shared effectively. Peer observation of A Level teaching is used well to encourage the less experienced to teach at this level, but similar opportunities to support innovation in other years is less well developed. The department might benefit from taking note of students' views. They recognise good teaching and learning.

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

- The school has introduced a number of initiatives to improve the quality of teaching and learning across departments through, for example, working groups on gifted and talented, enterprise and learning. A teaching assistant is being trained to provide targeted support across the mathematics department, focused on ensuring those who enter the school at Level 3 make good progress. An additional classroom has been built adjacent to the mathematics suite, to improve what are already good facilities.
- Two of the department are working with Oxford University on the teaching of mathematical proof and others have received training on graphical software. However, attendance on mathematical courses and at conferences is limited.

Areas for improvement, which we discussed, included:

- raise achievement, particularly the proportion attaining the highest grade, A\*, at GCSE
- encourage all teachers to broaden their repertoire of teaching strategies to include a greater variety of stimulating activities which enhance students' understanding through problem solving, discussion and collaboration
- increase opportunities for students to use ICT and appreciate the applications of their mathematics.

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