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Dear Dr Doherty

Ofsted 2007-08 survey inspection programme – mathematics

Thank you for your hospitality and co-operation, and that of your staff, during my visit on 9 and 10 October 2007 to look at work in mathematics. As outlined in my initial letter, as well as looking at key areas of the subject, the visit had a particular focus on students' enjoyment and understanding of 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.

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 nine lessons.

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

Achievement and standards

Students' achievement is outstanding. Standards are high.

- Standards at GCSE and in National Curriculum tests are high. Students arrive at the school with standards which are above average, overall, and make excellent progress in all years. Achievement is outstanding; over two-fifths of the students attained grades A* or A at GCSE in 2007.
- Well targeted support enables students with learning difficulties and/or disabilities to make excellent progress and to achieve well at GCSE.
- Achievement post-16 is also outstanding, overall. Results at AS and A-level are high, although the proportion achieving grades A and B at A-level fell in 2007. Large numbers opt to study mathematics post-16, with a significant number going onto mathematics, medicine or engineering related degrees.

- Most students enjoy mathematics. They are enthusiastic and appreciate the support they receive from teachers that enables them to develop a good understanding of the subject. Behaviour in lessons is exemplary.

Quality of teaching and learning

Teaching and learning are outstanding.

- All the mathematics teachers are subject specialists. Their enthusiasm for mathematics is infectious. Students are very positive about their teachers' ability to increase their understanding. One said, 'He is always checking we understand. He develops our confidence.' This comment captured the views of many.
- Students are engaged in a wide variety of activities. They are encouraged to work collaboratively, often in pairs. They realise, 'that's good, because you learn off each other.' However, some feel there are insufficient opportunities for group work and problem solving activities in Years 10 and 11.
- Teachers use skilful questioning to encourage students to explain their reasoning. Excellent use is made of computer-linked whiteboards to enhance students' understanding and to demonstrate the applications of mathematics.
- Assessment is rigorous. Marking is exemplary, with very clear advice on what to do to improve.
- Teaching is innovative. For example, members of the department are involved in a school initiative where teachers plan for the development of learning skills. The emphasis is as much on 'how' students learn, as on 'what' they learn. This encourages students' development of analytical skills.

Quality of the curriculum

The curriculum is outstanding.

- Schemes of work are comprehensive and regularly reviewed. They include some exemplar lesson plans, particularly where the lesson was innovative, such as a Year 7 lesson on cosmology. Good use is being made of technology to make the schemes interactive.
- Excellent progress is being made in the development of problem solving style assessments for all units of work in Years 7 and 8.
- The breadth of the curriculum is outstanding. Statistics is offered alongside mathematics in Years 10 and 11 and a choice of modules in statistics, mechanics, decision mathematics, as well as further mathematics, post-16.
- Planning for numeracy across the whole school curriculum is outstanding, with all departments including activities which exemplify using and applying mathematics. There is an excellent programme of enrichment activities, many of which, such as an architecture workshop on building bridges, effectively support the school's specialist status as a science and sports college.

Leadership and management

Leadership and management are outstanding.

- Leadership of the department is enthusiastic and innovative. The very able head of department leads a highly skilled team of mathematics teachers, which includes a good mix of experience. Some recently qualified teachers hold key positions within the department and are enthusiastically driving forward a range of creative initiatives.
- Departmental self-evaluation is extremely rigorous, and includes thorough analyses of examination results.
- Tracking of students' progress is also exemplary. Good intervention strategies are in place to address any underachievement. As a consequence, students, who might otherwise have given up trying, are working hard to achieve challenging target grades.

Subject issue: pupils' enjoyment and understanding of mathematics

Most students enjoy mathematics, because 'teachers are interested in the subject' and make the work exciting. 'Lessons go quite quick,' although they are actually mainly over two hours in length. Students feel confident because of the quality of teaching they receive. They recognise that the emphasis placed on explaining their reasoning helps them develop understanding. They appreciate opportunities to work together and like being challenged. For example, some in the sixth form find the work hard, but 'like the satisfaction of getting it right.'

Inclusion

Good support in lessons, an array of enrichment activities and teachers' willingness to provide additional support outside lessons ensures students' outstanding achievement. Grouping students by ability, including in Year 12, is used effectively to ensure all students achieve highly, with little difference between the achievement of boys and girls and different ethnic groups in most years.

Areas for improvement, which we discussed, included:

- further develop initiatives which place the emphasis on increasing students' understanding and confidence through greater use of problem solving activities, collaborative work and discussion, particularly in Years 10 and 11.

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

As I explained previously, a copy of this letter will be sent to your local authority and will be published on Ofsted's website. It will also be available to the team for your next institutional inspection.

Yours sincerely

David Bain
Additional Inspector