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Dear Mrs Lenton

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 15 and 16 September 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 learners, scrutiny of relevant documentation, analysis of students' work and observation of lessons.

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

Achievement and standards

Achievement in mathematics is good and standards are exceptionally high.

- Students make good progress. They enter the school with above average attainment and reach exceptionally high standards by the end of Key Stage 4. They take their Key Stage 3 tests at the end of Year 8, where they reach above average standards, and then spend three years on GCSE. High attainers have also taken an additional mathematics qualification, so are well prepared for A-level study in the sixth form. Nevertheless, some students who attained grade B made only satisfactory progress; higher grades might have been expected. In general, all groups make similar progress; for instance, girls and boys do equally well.

- The provisional 2008 results show improved attainment since 2007 with 86% reaching Level 7+, 75% reaching grades A* or A at GCSE, 57% reaching grades A-B at AS level, and more high grades in further mathematics. Standards are exceptionally high at AS level and those at A level are above average but not significantly so. The number of entries at A and AS levels also increased in 2008. The school's science specialist targets for mathematics have been met. The school recognises that standards in using and applying mathematics vary and are not as consistently high as standards overall.
- In the sixth form, students make very good progress, in particular at A level. A large number of students take mathematics courses. This includes a small and growing number taking further mathematics. Hitherto it has been taught in one year and progress has been below average.
- Students work hard and have very good relationships with their teachers who give them good support in lessons and if they are stuck. They are keen to learn.

Quality of teaching and learning of mathematics

The quality of teaching and learning of mathematics is good.

- Lessons are typified by teachers' expert subject knowledge and the great care they show towards their students, who they know well. Teachers give clear explanations and set students suitably challenging work. Homework is completed with teachers following up any missing work assiduously. In the sixth form, students find that their teachers' enthusiasm for the subject rubs off on them, so they work very hard and do well.
- In the best lessons, students are given demanding problems where they have to work out how to use their mathematics, and they rise to this challenge. Concepts are illustrated clearly through the well chosen examples, sometimes using information and communication technology (ICT), including its dynamic features, very effectively. Teachers know the expected misconceptions and structure examples to help students overcome them. They make lessons interesting and help students use increasingly elegant methods to solve problems.
- Where lessons are less successful, students spend too long listening to explanations and then using the worked examples to answer similar questions, which are sometimes insufficiently demanding, rather than thinking for themselves. Consequently, they know how to use a rule but do not understand it, so find it hard to apply in different contexts. Teachers do not pick up on errors students are making by listening carefully or circulating to check everyone's work, or notice where work is too easy and adapt it quickly. Some students say they would like mathematics lessons to be more interactive.
- Many students attest to the high quality of teaching they have received and the benefit of continuity of committed staff. However, some students have experienced inconsistent quality of teaching by a number of temporary teachers, especially this term when the school has appointed two new mathematics teachers from overseas who had not arrived at the beginning of the term.
- Students develop some independence through using ICT packages for support and revision, and completing the work set alone, but many rely strongly on asking their teachers if they are stuck or referring to the notes their teachers have provided. There is room to promote students' initiative and independence more effectively.
- Students know their current and target level or grade, and have a record of the criteria for each level or grade, but do not use it consistently for assessing their

own attainment or progress. They do not assess how well they understand and can explain a topic. The best marking gives students clear guidance on how to improve but the quality varies, with some being little more than a signature or a large tick.

Quality of the mathematics curriculum

The quality of the mathematics curriculum is good.

- Students are taught Key Stage 3 in two years and given three years to consolidate their GCSE studies. Early entry for GCSE has been tried in the past but students now deepen their knowledge and understanding effectively through spending a long time working on more demanding problems as part of their thorough revision. This helps them to do extremely well in examinations. The curriculum is well matched to each student's needs and enables higher attainers to prepare well for sixth-form studies by starting on AS units. The International Baccalaureate option provides three levels of mathematics course in addition to the AS, A level and further mathematics courses. Timing of completion of units in the sixth form also helps students to maximise their attainment through retaking. Take up of mathematics is high and increasing.
- Effective extra support is provided in terms of revision materials and ICT packages that students welcome, and staff make themselves available to help when needed. There is variability in the access students have to hands on computer work, and the use of graphical calculators is growing.
- Schemes of work meet requirements and offer structure to courses. They helpfully show misconceptions that students may make and have some associated ICT activities, but do not contain specific activities for enhancing the development of concepts or include a structured progression in using and applying mathematics.
- Students very much enjoy the enrichment activities such as visiting lecturers and mathematics trips that enhance their interest in the subject. These have mainly been appropriate for the higher attainers and some other students say they would also like to join in with additional mathematics activities.

Leadership and management of mathematics

The leadership and management of mathematics are good.

- The head of department provides enthusiastic support for the department with a clear emphasis on improving results. He has helped staff build on their strengths, inducting new colleagues effectively. A careful focus on attainment and communication with parents has helped to improve standards. There has been a continued improvement in resources and provision through evaluating and selecting suitable courses and materials for the students and training for staff.
- The target-setting system has helped students to do well. The school is improving the software provision for this, recognising that rationalisation and enhanced clarity about the meaning of current grades will enhance the tracking of progress against targets for all age and attainment ranges.
- The school has an accurate overall picture of the provision in mathematics. The monitoring of lessons by senior leaders and the head of department contribute to this but there is room for a clearer recording of judgements and areas for development to enable constant improvement to be identified and measured, and

linked to continuous professional development. This is also the case in the action plan which is not closely linked to critical self-evaluation. It identifies key activities, aiming to improve standards, but they concentrate on additional intervention and support rather than on raising teaching quality overall. The success criteria are expressed in terms of input actions rather than impact.

- Staff build good relationships with students that enable them to collect informal views and to act on them, such as by offering mechanics options which students had requested. Students' views on mathematics provision are not systematically built into evaluation and improvement.

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

- The department has supported new teachers, trainees and newly qualified teachers (NQT) in developing their skills, including the head of department who started at the school as an NQT. Through the training school, many teachers contribute to mentoring and meet new ideas.
- Staff attend many courses on examinations, syllabuses and software that they find useful and apply directly to their teaching.

Areas for improvement, which we discussed, included:

- ensuring students' entitlement to conceptual approaches that build their understanding and to using and applying mathematics through teaching, schemes of work and monitoring
- further raising teaching quality through recording and building on areas for development and linking them closely to professional development and support
- monitoring progress against targets across year groups more effectively and involving students more in assessing this
- prioritising development planning to improve impact, basing it more closely on critical evaluation that involves staff and students.

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 local Learning and Skills Council and will be published on the Ofsted website. It will also be available to the team for your next institutional inspection.

Yours sincerely

Gill Close
Her Majesty's Inspector