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Mr D Burnett
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Dear Mr Burnett

Ofsted 2009-10 subject survey inspection programme: mathematics

Thank you for your hospitality and cooperation, and that of the staff and students, during my visit, with David Knighton HMI, on 8 and 9 March 2010 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 how well the curriculum secures progression in mathematical understanding for every student.

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 included: interviews with staff and students; scrutiny of relevant documentation; analysis of students' work; and observation of parts of 19 lessons, including a joint observation with the subject leader and a 'learning walk' with a senior manager around five Year 7 lessons.

The overall effectiveness of mathematics is satisfactory.

Achievement in mathematics

Achievement in mathematics is satisfactory.

- The picture of attainment and progress is complex. Standards at GCSE have been average for the last few years but results of units taken already show they are poised to rise in 2010. High attainers take GCSE early before studying AS use of mathematics, but fewer than in previous years gained the highest A or A* grades at GCSE in 2009.

- At Key Stage 3, standards have been above average in recent years, and were again in 2009 in the proportions reaching the higher Levels 6, 7 and 8 in teachers' assessments, representing good progress for those students. While lower attaining students made satisfactory progress overall, more should have reached Level 5, the standard expected of 14-year-olds.
- Standards at A level are high, particularly in further mathematics where students make good progress from strong starting points. The results of sixth-form AS examinations in 2009 were poor. They stemmed primarily from teachers' inexperience of teaching AS courses but managers' support and monitoring of assessments and students' progress were insufficiently rigorous. Swift action has been taken to cover these shortcomings and to support those students continuing with A level.
- Students' progress is satisfactory overall. The quality of their learning in lessons and as reflected in their books varies from good to occasionally inadequate. It is best when teachers build students' understanding of the topic as well as their proficiency in solving examination questions.
- The vast majority of students behave very well in lessons. They work quietly and productively, but can be passive. The presentation of their work is sometimes unsatisfactory. Older students are keen to do well in public examinations and appreciate the readiness of staff to help them in and beyond lessons, and through various revision programmes.

Quality of teaching of mathematics

The quality of teaching of mathematics is satisfactory.

- Much of the teaching is satisfactory, but there is a sizeable core of good practice. Teachers use their good subject knowledge to give technically correct explanations but most do not exploit it effectively to develop students' conceptual understanding. There is a pronounced focus on students' ability to do well in examinations. However, mastery of disparate skills through repetitive exercises does not, on its own, equip students to think for themselves and apply mathematics to new or unusual contexts.
- During the inspection, lesson plans followed a three-part structure, but tended to list what students would do rather than what they would learn. The starter activity sometimes took too long. Teachers often ran out of time at the end of the lesson and did not return to the aims to see if they had been met or to consolidate or extend learning. Discussions with students indicated this was the usual pattern of lessons. There is scope to make better use of teaching assistants during whole-class teaching and to raise expectations of what lower-attaining students might achieve.
- While a few teachers are skilled in asking questions that promote students' thinking and probe their understanding, others ask closed questions of targeted students or volunteers. Strategies such as mini-whiteboards are not widely used to involve all the class and give the teacher quick feedback on students' progress. In the better lessons, students were given opportunities for discussion and pair work.

- The quality of marking varies. Some is good and provides students with helpful pointers on the source of errors or the next step in solving a problem. For instance, recognising that a student was repeatedly making mistakes when simplifying algebraic expressions that included negative terms, a teacher used a number line and a clear explanation to help the student tackle that question, similar ones and later work on solving equations. Other marking is superficial, missing mistakes. Some homework is unmarked. Students rarely mark their own classwork, leaving some unaware of errors or misconceptions and this does not help them to improve.
- The department has started to use 'Assessing Pupils' Progress' materials to record younger students' progress across the content of the mathematics curriculum, but not yet their progress in using and applying mathematics.

Quality of the mathematics curriculum

The quality of the mathematics curriculum is satisfactory.

- Up-to-date schemes of work for each set in Key Stages 3 and 4 include lists of resources but lack guidance for teachers on approaches and activities that promote conceptual understanding. Information and communication technology (ICT) is rarely used by students as a tool for learning mathematics.
- The department has made a systematic start to enhancing Key Stage 3 students' skills in using and applying mathematics through half-termly opportunities to tackle 'rich tasks'. Older students have limited opportunities to tackle a range of problems in a variety of contexts and to make links between different areas of mathematics.

Effectiveness of leadership and management of mathematics

The leadership and management of mathematics are satisfactory.

- Turnover of staff led to four teachers, three of whom were newly qualified, joining the department 18 months ago. Over the same period, there have been unavoidable changes in line management of the department. Current arrangements are satisfactory. Senior staff are providing appropriate challenge and support, through, for instance, increased curriculum time and staffing. They have implemented a number of strategies to raise standards at GCSE in mathematics and English. Staff are held to account for their performance.
- The subject leader is an effective classroom practitioner. He is supported in his leadership role by two staff who have responsibilities for Key Stage 3 and 14 to 19 mathematics. The team's complementary strengths and skills, coupled with strong support and challenge from senior staff, underpin the satisfactory capacity to improve provision and outcomes further.
- Senior staff have an accurate view of the quality of teaching, but the subject leader's evaluation is overly positive because insufficient weight is

given to students' gains in knowledge, skills and understanding. Feedback on teachers' lesson planning and scrutiny of students' books contains some important advice, but it does not make the need for improvement clear. Monitoring is not rigorous enough to ensure weak progress is not missed. Development planning lacks sharpness about the intended impact of actions. Teachers collaborate with each other, sharing ideas and resources, but there is no systematic approach to improving teaching.

- The school's specialist mathematics and computing status is currently having little impact in mathematics. The school has not been successful in its attempts to recruit advanced skills teachers.

Subject issue: how well the curriculum secures progression in mathematical understanding for every student

- The department has an established pattern of entering two sets of Year 10 students early for GCSE, followed by AS use of mathematics in Year 11, and A-level mathematics and further mathematics in the sixth form. Many able students enjoy this pathway through mathematics and speak enthusiastically about continuing with it in the future. Other aspects are adjusted from one year to the next, for instance the timing of unit entries in reaction to weaker results. Such actions are not generally accompanied with a deeper analysis of the provision that led to the outcomes.
- The schemes of work provide suitable coverage of mathematical content and reflect the hierarchical nature of topics. The department frequently moves students between sets but this practice should be reviewed to ensure that unnecessary discontinuities in progress are avoided.

Areas for improvement, which we discussed, include:

- improving the quality of learning in lessons and over time, ensuring students have opportunities to apply their mathematics and discuss their ideas and reasoning
- raising the quality of teaching, so that all is at least good by:
 - ensuring teachers place an appropriate emphasis on developing students' conceptual understanding
 - bringing greater variety to activities in lessons, including the use of ICT by students
 - improving teachers' use of assessment for learning
- supplementing schemes of work with activities that promote students' understanding and problem-solving skills, providing guidance for teachers on approaches that secure good learning
- securing more rapid improvement by sharpening the rigour of monitoring, including scrutiny of students' work and teachers' planning and lesson observations, and using the outcomes to identify and tackle weaknesses and inconsistencies, share good practice, and inform insightful development planning.

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 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

Jane Jones
Her Majesty's Inspector