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2 July 2010

Miss S Coates
Principal
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Dear Miss Coates

Ofsted 2010–11 subject survey inspection programme: mathematics

Thank you for your hospitality and cooperation, and that of the staff and students, during my visit with Gill Close HMI on 21 and 22 June 2010 to look at work 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 without their consent.

The evidence used to inform the judgements included interviews with staff and students, scrutiny of relevant documentation, analysis of students' work, observation of 12 lessons and short visits to five others.

The overall effectiveness of mathematics is good.

Achievement in mathematics

Achievement in mathematics is outstanding.

- The academy admits students of all abilities but, overall, their attainment in national tests at primary school is below average. By the end of Key Stage 3, attainment is average and at GCSE in 2009, it rose to significantly above average. The academy's data show it is likely to be even higher this year. The improvement over the last three years has been impressive: 53% of students gained A* to C grades at GCSE in 2007; 73% in 2009; and the department estimates over 80% in 2010. Another notable statistic is that 100% of the 2009 cohort passed GCSE mathematics.
- Students make outstanding progress throughout Key Stages 3 and 4. Several factors contribute to this. Good progress in many lessons is supported closely by a range of revision and intervention activities. Mathematics has received a good allocation of teaching time in all year

groups, although this has been reduced in Key Stage 4 during the current academic year. One element which cannot be measured is the way the students have 'bought into' the department's success: their self-belief and determination to succeed in examinations is evident.

- The quality of learning in lessons is often good. Students learn methods effectively and practise hard which equips them well for passing examinations. However, the depth of their understanding of the underpinning concepts and ability to reason mathematically vary.
- So far, the academy has only one set of AS results in mathematics, taken in 2009 by the top set in Year 11 who sat GCSE early in Year 10. A few of these, now Year 12 students, will complete A-level mathematics this summer. The newness of the academy's sixth form means that there is not yet a pattern of attainment and progress but data from unit examinations show that some students are making better progress than others.
- Students' behaviour is mostly good although often passive, with only a minority offering answers to teachers' questions, others perhaps lacking the confidence to become more involved. Where students are given the chance to work in pairs and discuss mathematics, they respond well. They appreciate the way teachers give generously of their time to help them.

Quality of teaching of mathematics

The quality of teaching of mathematics is good.

- The quality of teaching varies: there is a core of good practice but also some teaching that is satisfactory. The longer-term impact of the teaching is strengthened by targeted additional support for students of all abilities. Teachers are highly committed to the students' success and expect them to work hard.
- The best teaching focuses on developing conceptual understanding, drawing on a range of interesting activities that ensures the entire class is involved. Students are given opportunities to work in pairs or groups and discuss mathematics, and are presented with appropriately challenging and varied work. Planning sequences learning carefully within individual lessons and over time.
- The teaching that was satisfactory tended to focus on methods required to solve examination questions, providing plenty of practice. The pace of learning was sometimes slowed because the teacher talked too much, constrained the rate at which the lesson progressed, or lacked clarity when explaining tasks or methods. Some teachers did not check the learning of all students to pick up clues about their understanding so that teaching could then be adjusted more precisely to their needs. Lesson planning and teaching did not take sufficient account of the range of aptitudes and starting points within the class.
- Teachers use assessment information well to identify precisely the topics with which students need additional support. However, the use of assessment to support learning throughout lessons is weaker; for instance questioning is often closed and does not probe understanding or challenge

thinking, and not all teachers move around the class to check students' work effectively for errors and misconceptions. The quality of marking varies: it is satisfactory at best. Too much work is unmarked by teachers or students.

Quality of the mathematics curriculum

The quality of the mathematics curriculum is good.

- The department is ambitious in the level of work it expects students to tackle: around two thirds of Key Stage 4 students study the higher tier GCSE specification. The ambition is also reflected in the use of early entry for GCSE followed by AS in Year 11 for the top set. The academy is rightly considering various options for post-GCSE study to ensure the best courses and pathways are available to individual students.
- Teachers meet regularly to discuss individual students' progress. The range of support provided meets students' needs well.
- The schemes of work at both key stages are adequate in ensuring coverage of the curriculum but do not include guidance on sequencing topics and on approaches and activities that promote conceptual understanding. Such guidance is valuable for all teachers but particularly those who are less experienced or not mathematics specialists. At present, students' experience of problem-solving and learning through practical activities varies widely. The use of information and communication technology as a tool for learning mathematics is underdeveloped.
- The department is aware of the need to increase the emphasis on problem-solving. All students have some opportunities to investigate and to use and apply their mathematics but the extent to which this is an integral part of their learning is limited in some classes.

Effectiveness of leadership and management of mathematics

The effectiveness of the leadership and management of mathematics is good.

- The department's shared common purpose to raise attainment has been very successful: morale of staff and of students is high. The track record of improvement, coupled with the effective practice that exists within and beyond the departmental leadership team, demonstrates the capacity for further improvement. While there is some sharing of ideas and good practice, a more systematic approach is required to make the step-change to outstanding teaching and curriculum. As you state in the academy's improvement plan, the focus needs to be on classroom practice with 'planning, teaching and marking to the highest standard and exemplifying passion and excitement for learning'.
- Senior leaders rightly recognise the remarkable improvements in mathematics results over the last three years. The line manager and head of department use the academy's systems for monitoring and evaluation, but analysis of how provision can be improved has been insufficiently critical. Appropriate areas of curricular development have been identified,

but a rosy view of the quality of some of the teaching has led to a lack of challenge. Monitoring has not pinpointed the mathematical detail of what needs improving. A rigour, similar to that with which the department monitors students' progress, is required.

Areas for improvement, which we discussed, include:

- raising the quality of teaching, ensuring teachers:
  - focus on developing conceptual understanding, including through the use of ICT and practical activities
  - monitor students' progress throughout the lesson, adapting approaches and choice of resources to meet students' needs
  - provide opportunities for students to discuss mathematics and develop their reasoning skills
- strengthening schemes of work by:
  - providing guidance for teachers on approaches and activities to promote conceptual understanding and on sequencing learning
  - integrating problem-solving and using and applying mathematics across the mathematics curriculum in all key stages
- sharpening the quality of monitoring of provision, for instance by:
  - focusing lesson observations on the development of students' understanding
  - checking that all students have good opportunities to solve problems and investigate, discuss and reason.

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

As explained previously, a copy of this letter will be published on the Ofsted website under the URN for your school. It will also be available to the team for your next institutional inspection.

Yours sincerely

Jane Jones
Her Majesty's Inspector