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29 March 2010

Mr P Danielsen
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Dear Mr Danielsen

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 on 17 and 18 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; observation of 10 lessons; and short visits to four others.

The overall effectiveness of mathematics is satisfactory.

Achievement in mathematics

Achievement in mathematics is satisfactory.

- Students' attainment on entry to the school at age 11 is well above average. All groups of students make satisfactory progress in mathematics and standards remain well above average at age 16. In the last two years, A-level mathematics results have been close to the national average.
- Most students have positive attitudes to mathematics and want to understand the concepts and to develop their skills. They respond best when they are given opportunities to think for themselves, but this does not happen in all lessons. Some are over-reliant on their calculators.

- During the inspection, sixth-form and high attaining Year 11 students made good progress owing to good teaching. In Year 8, a practical approach was used by all teachers and this helped students to improve their visualisation skills. In the majority of lessons, learning was satisfactory. In statistics, students successfully completed statistical graphs and calculations, but did not learn enough about interpreting their results.

Quality of teaching of mathematics

The quality of teaching of mathematics is satisfactory.

- In the strongest lessons, teachers used a two-pronged approach, mixing exploratory activities to develop conceptual understanding with traditional mathematical exercises to develop procedural skill. In the satisfactory lessons, only one of these aspects was emphasised. Those in Key Stage 4 focused on procedures, with students mainly following instructions. All the Key Stage 3 lessons included discussion and practical approaches, but not all consolidated the intended learning well enough.
- Teachers vary in their skill in using assessment to support learning during the lesson. In the best lessons, teachers assess students' progress through well-chosen questions and by observing them as they work. However, some lessons do not include enough activities for the teacher to check on students' understanding and modify the lesson accordingly. In lessons with a practical approach, assessment opportunities are sometimes missed.
- The quality and frequency of marking is inconsistent so not all students receive enough guidance on how to improve their work. Few assessment tasks are specified in the schemes of work. Some practical activities provide students with valuable experiences, but do not result in an assessable outcome. In particular, there is not enough assessment of students' progress in using and applying mathematics.
- Marking records do not follow a common format and the department's outdated marking policy does not promote good practice. Students often check their own answers and, while this approach has a legitimate role, it sometimes means that errors in working or notation go unchallenged.

Quality of the mathematics curriculum

The quality of the mathematics curriculum is satisfactory.

- The department has tried various approaches in recent years to meet the needs of different groups of students. It has sensibly stopped entering high attaining students for AS mathematics in Year 11 and now plans to meet their needs by improving further mathematics provision in the sixth form. Students in the lowest set are entered for the foundation tier of GCSE in Year 10, but most are satisfied with a grade C and few take up the option of entering the higher tier in Year 11.
- The rationale for entering students in lower sets for GCSE statistics is not entirely clear, particularly when results in GCSE mathematics represent only satisfactory progress. While some students enjoy learning the

complex calculation methods, others find the work difficult. The statistics lessons observed emphasised procedures at the expense of statistical thinking and the interpretation of results.

Effectiveness of leadership and management of mathematics

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

- The school has a team of well-qualified and experienced mathematics teachers. The second in department has gained the support of colleagues to review the provision for Years 7 and 8. Progress with other aspects of the departmental action plan has been slower owing to a mixture of ineffective planning and procrastination. Achievement is currently satisfactory but not improving.
- The department's self-evaluation is not rigorous enough because monitoring procedures are not securely established. The departmental handbook is incomplete and no regular checks take place to ensure that the policies it does contain are complied with. The basis for planned improvements is not linked closely enough to evidence from lesson observation and work scrutiny. As a result, the action plan does not focus strongly enough on improving outcomes in mathematics.
- In contrast, senior leaders have conducted a perceptive evaluation of mathematics provision and accept the areas for improvement indicated below. They are tackling the weaknesses in departmental leadership through well-established line-management arrangements.

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

- The schemes of work for Years 9 to 13 contain few references to using and applying mathematics. They indicate the topics to be covered, mostly through references to text books, but provide little guidance on how topics might be approached. They do not capture the existing good practice. For example, the students interviewed had made recent use of computer software to help them learn mathematics and they could explain how the area of a circle is derived from simpler principles.
- In Years 7 and 8, teachers are working collaboratively to improve provision. The greater emphasis on using and applying mathematics is having a beneficial effect, for example by incorporating practical work to promote conceptual understanding.

Areas for improvement, which we discussed, include:

- ensuring that all students receive regular feedback indicating how they can improve their work by:
 - making sure that all lessons include opportunities for the teacher to assess each student's progress and modify the lesson accordingly

- revising the department's marking policy to make clear the expected frequency and purpose of marking
- improving the curriculum by:
 - ensuring that the additional qualifications offered in Key Stage 4 have a clear rationale and are not achieved at the expense of good grades in GCSE mathematics
 - giving more emphasis, in the statistics curriculum, to independent thinking and the interpretation of results
 - completing the review of schemes of work, ensuring that they capture the existing best practice in teaching and provide guidance on assessment, including that of using and applying mathematics
- strengthening departmental leadership by making sure that:
 - the department's self-evaluation is informed by regular lesson observation and work scrutiny that identify areas for individual and departmental improvement
 - the department's action plan specifies the improvements required in outcomes and explains how and when they are to be achieved.

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

As we explained previously, 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

Stephen Abbott
Her Majesty's Inspector