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Ms S Staab
Headteacher
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Dear Ms Staab

Ofsted 2013–14 subject survey inspection programme: mathematics

Thank you for your hospitality and cooperation, and that of your staff and students, during my visit on 26 and 27 June 2013 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 Norton Knatchbull School is a grammar school for boys and has a co-educational sixth form. The evidence used to inform the judgements included interviews with staff and learners, scrutiny of relevant documentation, analysis of students' work and observation of 10 lessons.

The overall effectiveness of mathematics is good.

Achievement in mathematics is good.

- In the best lessons, students use their existing knowledge well to find ways of tackling new topics and unfamiliar problems. In all cases, students complete a lot of work each lesson and this helps develop their knowledge and skills through practice.
- As a result, students make excellent progress in Key Stages 3 and 4 from their above-average starting points to attain high standards at GCSE. The gap between the very few students supported by the pupil premium and other students in the school is smaller than average.
- Students' achievement in the sixth form has not been as strong. In 2012, attainment was below average in AS examinations and broadly average in A level and the International Baccalaureate. A key factor was that, despite

their good GCSE grades, some students had not mastered the key topics needed for advanced work, such as algebra, trigonometry and graphical work.

- Achievement in the sixth form has improved in the current year because the school has provided extra support for students who find the transition from GCSE difficult. In addition, more challenging work is being provided in Key Stages 3 and 4 to smooth the transition in future years.
- Year 13 students hone their communication skills by mentoring younger students through a series of lunchtime mathematics support classes.

Teaching in mathematics is good.

- The good teaching typically includes a mixture of exploratory work and exercises that include a gradient of difficulty, allowing students to extend their learning by trying progressively more challenging questions. The best teaching is outstanding and is particularly effective at stretching the most able students, for whom expectations are very high. Teachers check students' understanding by observing them as they work and by asking probing questions, in response to which students are expected to explain their reasoning.
- A small minority of teaching requires improvement. In these lessons, teaching is not always well planned to develop good understanding for all students. Teachers sometimes allow a few individuals to answer questions on behalf of the class and do not always check on students' progress as they work. As a result, students who are struggling are not always identified quickly.
- The quality of marking is inconsistent. Students are expected to mark their own classwork but do not always do so. Some students develop bad habits in their presentation that may be condoned by the teacher if the answer is correct. Teachers provide written feedback, but do not always ask for specific responses such as corrections, further practice or challenge.
- Regular summary assessments provide information that is used to identify students who need extra support. Intervention of this type is improving on AS courses, where several students have benefited from extra tutorials.

The curriculum in mathematics is good.

- Students are offered a good range of qualifications, including GCSE statistics in Key Stage 4 and Further Mathematics in the sixth form. Students can access preparation for the Cambridge Sixth Term Examination Paper. Plans are in place for next year to offer AS Use of Mathematics in the sixth form and a Free Standing Mathematics Qualification in Additional Mathematics in Key Stage 4, but only for the most able.
- The schemes of work provide a clear indication of which topics to teach and in what order. Those for Key Stage 3 include hyperlinks to a range of resources, but otherwise the schemes of work provide little guidance on how to teach the various topics.

- While most teachers aim to develop understanding and reasoning through exploratory and problem-solving activities, they do not always succeed with all students. In addition, they do not all interpret the schemes of work in the same way, so that different sets may cover topics in varying depths.

Leadership and management of mathematics are good.

- Senior leaders are determined to make the school outstanding. Together with the head of department, they have raised expectations in mathematics and have delivered clear improvements in the quality of teaching. The tracking of students' progress is well-established and leads to effective intervention with students at risk of underachieving.
- Accurate and perceptive lesson observations are used to identify individual and collective professional development needs, the latter at both whole-school and departmental level. For example, the mathematics department has recently had training on the use of graph-plotting software. However, the lesson observation records do not include enough detail on how well students learn and develop their understanding.
- Regular team meetings provide opportunities for teachers to discuss teaching approaches and to share good practice. However, the schemes of work do not always incorporate the best practice as advice for teachers.
- Work scrutiny undertaken by senior leaders and the head of department has ensured that all teachers follow the school's marking policy, but is not resulting in marking that consistently benefits students.

Areas for improvement, which we discussed, include:

- raising achievement in the sixth form, especially at AS by providing:
  - greater challenge at GCSE by extending the scope of Additional Mathematics and by including more non-routine questions
  - more support for AS students, to improve their understanding
- ensuring that marking consistently helps students to improve their skills, deepen their understanding and communicate their working effectively
- reflecting departmental discussions and departmental professional development activities in guidance within the schemes of work.

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

As explained previously, this letter will be published on the Ofsted website. It may be used to inform decisions about any future inspection.

Yours sincerely

Stephen Abbott
Her Majesty's Inspector