Aviation House
125 Kingsway
London
WC2B 6SE

T 0300 123 1231
F 020 7421 6855
enquiries@ofsted.gov.uk
www.ofsted.gov.uk

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Mr J Nixon
Headteacher
City of Norwich School
Eaton Road
Norwich
NR4 6PP

Dear Mr Nixon

Ofsted 2012–13 subject survey inspection programme: mathematics

Thank you for your hospitality and cooperation, and that of your staff and students, during my visit on 10 and 11 July 2012 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; and observation of 10 lessons (Years 7, 8, 9 and 12 only).

The overall effectiveness of mathematics is good.

Achievement in mathematics

Achievement in mathematics is good.

- Achievement in mathematics has risen considerably over the last three years. Attainment on entry to the school varies from broadly average in some cohorts to above average in others. Students make good progress to obtain strong GCSE results, with increasing numbers of A and A* grades.
- Students make good progress because each topic is usually covered in reasonable depth, with students having plenty of opportunity to tackle exercises that help consolidate their learning. Those in the higher sets make the best progress because they are taught beyond what is strictly needed for GCSE, providing good coverage in algebra.
- Sixth form students appreciate the support available from teachers and through the regular mathematics clinics. Year 12 students make good progress, but some do not have strong enough prior learning from GCSE.

Consequently, attainment is below average in Year 12 and only half continue into Year 13, where standards are above average.

- Students have mainly positive attitudes to mathematics, but are passive in some lessons. This is because they anticipate that their teachers will show them what to do if they do not suggest ideas themselves. Consequently lessons do not always build efficiently on students' previous learning.

Quality of teaching in mathematics

The quality of teaching in mathematics is good.

- The most effective teachers incorporate exploratory activities where students use their existing knowledge to get started on a new topic. For example, in a Year 12 lesson on the modulus function, the teacher gave a brief introduction and then challenged students to sketch graphs of various composite modulus functions. Students were given a strategy to apply previous learning rather than being shown directly what to do. Consequently, they developed a secure understanding of the topic.
- Most of the Key Stage 3 lessons observed involved students working in groups on extended applications of mathematics to real life, such as work on designing a 'smoothie' and calculating associated costs and nutritional information. Students enjoy these opportunities but their more typical experience consists of explanation and modelling by the teacher, then individual work under supervision. This approach sometimes emphasises the teaching of 'rules to remember' rather than conceptual understanding.
- Teachers address students' different needs, partly through their planning but also by monitoring students as they work and responding appropriately. Good examples were seen of teaching assistants working effectively to support disabled students and those who have special educational needs. However, some teachers allowed a few keen students to dominate during whole-class discussion.
- The intervention assistant provides withdrawal for extra help at form time and good roving support for students who are underachieving or need to catch up for other reasons, such as absence. Intervention is now spread fairly across the school to support all year groups and ability levels.
- The school has a well-established system of formal assessments. Test papers are analysed to guide students' revision, but the information is not always used to evaluate teaching. Teachers mark regularly, making comments that demonstrate correct working or diagnose the source of error. However, students are not always helped to record their work coherently, because working is not consistently well modelled and marking does not always address or follow up presentational issues.

Quality of the curriculum in mathematics

The quality of the curriculum in mathematics is satisfactory.

- The schemes of work indicate the topics to be covered within each year. They include references to textbook and other resources but limited

guidance on how best to approach each topic and no mechanism to ensure that parallel classes cover topics in the same depth. Teachers' different interpretations of the schemes of work also lead to unhelpful variations in the methods students are taught to record their working.

- The school aims to provide a broad education that is not just examination focused. However, the curriculum has too little emphasis on using and applying mathematics in context. The end-of-year focus on functional mathematics is the main opportunity for students to learn about enterprise and to develop teamwork and presentational skills. Sixth form students know little about the historical and cultural aspects of mathematics.
- Sixth formers, who come from many different schools, find the step up to A-level mathematics considerable, despite a summer bridging course. The school is sensibly raising its entry requirements. Students want more information about the challenges they will meet, and better guidance on further mathematics and the implications for higher education.

Effectiveness of leadership and management in mathematics

The effectiveness of leadership and management in mathematics is good.

- Senior leaders provide a strong sense of drive and ambition, recognising the key role of mathematics in raising standards in the school. Their good leadership of teaching has ensured that all lessons follow the school's template. Appropriate professional development is provided for staff.
- The department is well managed. For example, the time gained by teachers of Years 11 and 13 has been deployed to rewrite the Key Stage 3 assessments and revise the Key Stage 4 scheme of work. The subject leader has built a strong team spirit in which teachers regularly share ideas informally. This provides good support for newly qualified teachers. However, the department does not have a systematic approach to reviewing its own practice and developing consistency.
- The department's capacity for further improvement is evident from the upward trend in outcomes since 2009. The regular and well-executed departmental reviews include accurate lesson observation and work scrutiny by senior leaders and the subject leader. Self-evaluation is realistic and teachers are held to account for their impact on students' results. Issues such as the below-average success rate in AS mathematics have been thoroughly investigated, and action plans devised.

Areas for improvement, which we discussed, include:

- developing students' understanding better, particularly in Key Stage 3, by:
  - incorporating more exploratory activities in which students have time to make sense of new areas of learning
  - putting more emphasis on why methods work
- improving students' ability to communicate their mathematical thinking by:
  - commenting on presentational issues as part of regular marking, and checking to ensure that guidance is followed

- modelling consistently the preferred ways of setting out work, for example in the solution of equations

- revising the schemes of work to incorporate guidance on:
  - the depth of treatment expected for each topic in different sets
  - the preferred approaches to key topics to ensure a coherent and progressive treatment of each topic over time.

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. It may be used to inform decisions about any future inspection. A copy of this letter is also being sent to your local authority.

Yours sincerely

Stephen Abbott
Her Majesty's Inspector