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Mr J Porteous  
Headteacher  
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Dear Mr Porteous

### **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 with Denah Jones HMI on 5 and 6 February 2014 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 16 lessons, four jointly with subject leaders, and brief visits to five lessons with a senior leader.

### **The overall effectiveness of mathematics requires improvement.**

#### **Achievement in mathematics requires improvement.**

- Students join the school having attained above-average results in national tests at primary school. Five years later, they attain similarly above-average GCSE results. While many students make the progress expected, too few from across the attainment spectrum make good progress. In particular, not enough of the more able reach A\*/A grades and too few lower attainers make expected progress or catch up with their peers. Nevertheless, the trend is upwards, albeit quite slow. Early indications for 2014 point to a further improvement in outcomes.
- The school is aware of the uneven achievement of different groups; for example, boys do less well than girls. Students known to be eligible for free school meals achieved less well overall than their peers by one GCSE grade in 2013, which was narrower than in 2012. The school is using pupil premium funding to help close the gap with positive signs for 2014 but less so for the current Year 10 cohort.

- Achievement in the sixth form requires improvement. It has been stronger at AS than at A level, where not enough students reach the highest A\*-B grades. The school's data indicate some improvement is likely in 2014. Over 100 students study AS/A-level mathematics in the sixth form and, of these, around a third are currently working below their target grades.
- The quality of learning varies. At its strongest, students demonstrate understanding of the mathematics they are learning through their oral and written work, in the questions they ask the teacher, and through applying their knowledge to solve problems, showing a readiness to persevere.
- By contrast, most students' learning requires improvement. Students use taught methods but without always understanding why they work. Although students are attentive and work diligently through set exercises in lessons, they are too often dependent on recalling 'rules', looking back to worked examples, or asking the teacher for help rather than being able to think solutions through for themselves. Many have limited experience of solving problems. When speaking with inspectors, students said they would like more practical activities, problem solving and working together in groups.

### **Teaching in mathematics requires improvement.**

- The quality of teaching varies widely but with a core of strong practice that has high expectations at its heart. Characteristics of the best teaching include teachers' explanations, use of questioning, and choice of exercises and problems that deepen students' understanding and reasoning skills.
- Most teaching requires improvement. Students too often work through repetitive exercises that do not require them to think hard and restrict their progress by limiting learning to small fragments of the mathematics curriculum, losing the bigger picture. Teachers occasionally provide 'rules' that are not well founded mathematically, such as 'move the decimal point' or 'add a zero when multiplying by 10'.
- Generally, teachers have good subject knowledge but do not exploit it consistently well to provide challenge for all students and reflect ambition for what they might achieve. Teachers circulate while students work, picking up on errors and misconceptions, but do not often use computer software or practical activities to help students visualise difficult concepts.
- The quality of marking varies widely from excellent guidance for students to cursory ticks and crosses. Some students' books show little evidence of being seen or marked by teachers. Poor mathematical presentation can go unchallenged. Where homework is completed regularly on-line, students have insufficient practice in presenting their work to a high standard.

### **The curriculum in mathematics requires improvement.**

- The schemes of work provide adequate coverage of the curriculum but their interpretation by teachers is inconsistent. No written guidance is provided on what content should be taught to each set and to what depth, or on suitable approaches to adopt to secure understanding and promote progression. Some of the schemes include links to problem-solving and investigative activities but no check is made on whether teachers use them.

- The development of the new Year 10 scheme focused valuably on progression in mathematical concepts but requires supplementary guidance to ensure appropriate coverage and challenge in each class.

### **Leadership and management of mathematics require improvement.**

- The school has appropriate systems for leadership and management of the subject, such as monitoring of teaching, work scrutiny, data analysis and development planning. These need refining to make them more effective in driving improvement. In particular, monitoring of teaching and learning focuses on generic aspects and is too infrequent to make a significant difference. Strategic decisions, such as the deployment of key staff to lower sets, are well reasoned but their impact requires precise evaluation.
- Observations conducted jointly with leaders were evaluated accurately. More broadly, however, self-evaluation is over-generous in its assessment of students' progress and teaching quality. This means that the most important priorities, teaching and learning, are not centre stage in the development plan. A robust, systematic approach to improving teaching is required to complement the current activities of sharing good practice, peer observation, and support plans for some teachers. All of these could be sharper in what they aim to achieve and how they are followed up.
- The department is fully staffed with mathematics specialists, some of whom have senior leadership responsibilities and contribute to the department's capacity to improve. Some less experienced post-holders would benefit from opportunities to develop their leadership skills.

### **Areas for improvement, which we discussed, include:**

- improving learning and progress of all students by:
  - ensuring teaching places a consistent emphasis on developing conceptual understanding, drawing as appropriate on practical activities and computer software
  - increasing opportunities for problem solving and reasoning and reducing reliance on unchallenging, repetitive exercises
- ensuring schemes of work incorporate guidance on:
  - teaching approaches and the development of students' problem-solving and reasoning skills
  - what topics should be taught and to what depth
- increasing the effectiveness of leadership and management by:
  - ensuring monitoring of teaching and learning by senior and subject leaders focuses on subject-specific aspects and is conducted frequently enough to eradicate weaknesses
  - clarifying the detail of the support plans provided for individual teachers and checking for impact
  - ensuring that good practice is shared and acted upon
  - developing the leadership and management skills of post-holders.

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. A copy of this letter is also being sent to your local authority.

Yours sincerely

**Jane Jones**  
**Her Majesty's Inspector**