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15 December 2014

Mr J McNaughton
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Dear Mr McNaughton

Ofsted 2014–15 subject survey inspection programme: mathematics

Thank you for your hospitality and cooperation, and that of your staff and students, during my visit with Jane Jones HMI on 3 and 4 December 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: meetings with staff and students; scrutiny of relevant documentation; analysis of students' work; and visits to lessons and intervention sessions.

The overall effectiveness of mathematics requires improvement.

Leadership and management of mathematics require improvement.

- Leaders have acted with renewed determination to challenge students' unsatisfactory achievement in mathematics during recent years. New arrangements for line management of the department coincide with the recent increase in expectations placed on teachers and students.
- Members of the department are increasingly supportive of leaders' drive for improvement. Collaborative modelling, sharing and development of new teaching approaches are beginning to secure improvements in the quality of teaching and students' progress.
- Leaders have made good use of students' performance data, work scrutiny and learning walks to inform the current improvement plan, which focusses on appropriate priorities, and reflects a shared understanding of what needs to be better in mathematics. Greater clarity is required on how

monitoring can be sharpened to pin-point weaknesses and drive improvement forward strategically.

- Leaders are clear about how teaching needs to improve, placing a good emphasis on conceptual understanding, problem solving and reasoning. However, their judgements about the current quality of teaching are overly positive, particularly given the pattern of recent underachievement and evidence from some lessons and students' work.

The curriculum in mathematics requires improvement.

- The new national curriculum has been implemented. The two-year Key Stage 3 scheme of work provides good guidance on progression by varying the depth and breadth of learning for students of different abilities.
- Students begin studying GCSE in Year 9. The scheme of work has been updated in line with the new curriculum. However, it allocates too much time to low grade topics. This causes unnecessary repetition for some students, particularly the more able, because it does not build on what students have learnt already and limits the time available for more challenging material. Such an approach in the past contributed to students not being as well prepared for A-level mathematics as they could be.
- The AS/A-level scheme of work has been updated to ensure challenging topics are reached more quickly. Pre-course preparation has been introduced to refresh students' GCSE knowledge and skills and reduce the amount of time spent re-teaching GCSE topics. Teachers are not making full use of students' attempts at these materials to identify areas of strength and weakness and ensure a rapid start to learning in Year 12.

Teaching in mathematics requires improvement.

- In the past, teaching has too often focused on the acquisition of skills without depth of understanding. Students' books show that repetitive exercises remain prevalent in some classes. Opportunities for problem solving and reasoning have also been limited. New approaches to teaching are leading to improvement but are not embedded across the department. Leaders in the department are good role models of effective practice.
- Sometimes, teachers pitch learning too low because they do not give enough consideration to students' starting points when using schemes of work to plan activities. The stronger teaching makes the most of ongoing assessment in lessons to adapt teaching accordingly, for instance to increase challenge, or spot and probe misconceptions.
- Teachers ask good questions to make students think about what they are learning. Some are skilled in assessing students learning, while others do not always target questions well enough to capture students' depth of understanding.
- The department has worked hard on improving the quality of written feedback to students. Students often respond well to feedback which pin-points where they have shown good mathematical understanding and

signposts specific further improvements. Work remains to be done to ensure consistently good quality feedback and response by students.

Achievement in mathematics requires improvement.

- In recent years, too many students made inadequate progress by the end of Key Stage 4. Attainment at GCSE has fallen and was slightly below the national average in 2014. Students with average or low starting points made the least progress. However, a greater proportion of students currently at the school are on course to make expected progress.
- The attainment of disadvantaged students is beginning to improve. The large gap between their attainment and others' narrowed considerably in 2014 to just over one GCSE grade. The school's data points to a further closing of the gap next year.
- Attainment and pass rates of sixth-form students are too low. At AS, weak achievement has led to too many students dropping mathematics after Year 12. Improvements to AS results in 2014 are evident, but have not been matched by A-level attainment which has decreased slightly.
- Students demonstrate good attitudes to mathematics, but this is not matched by their confidence or resilience. Changes to teaching approaches are having a positive impact which is more noticeable in small intervention classes and younger year groups.
- Students are better at learning facts and methods than reasoning or problem solving. Improvements to teaching are focusing more on developing these skills. Some students' learning is hindered by a legacy of weak conceptual understanding and proficiency in basic skills.

Areas for improvement, which we discussed, include:

- increasing the proportion of good teaching by ensuring that:
  - teachers' questioning and observation of students at work are used effectively to assess what students can do and are ready for next
  - activities and exercises provide depth and challenge, replacing repetitive exercises with work that develops students' problem solving, reasoning and conceptual understanding
- increasing the level of challenge provided through the curriculum by:
  - ensuring that teachers make better use of their assessment of students' current knowledge and understanding when using the new schemes of work to plan activities
  - removing the unnecessary repetition from the Year 9 scheme of work
- improving achievement and success rates at AS/A level by ensuring that:
  - students studying higher tier GCSE are well equipped to tackle advanced-level mathematics
  - teachers make better use of pre-course material to plan activities that take account of students' initial strengths and weaknesses

- sharpening the focus of monitoring and acting more swiftly on its findings to embed the recently established higher expectations of the department and to drive more rapid improvement.

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

Michael Pennington
Her Majesty's Inspector