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12 April 2012

Mr Iain Blaikie  
Principal  
Alcester Grammar School  
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Dear Mr Blaikie

### **Ofsted 2011–12 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 March 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 11 lessons and one lunchtime support session.

The overall effectiveness of mathematics is outstanding.

#### **Achievement in mathematics**

Achievement in mathematics is outstanding.

- Students' attainment is high on entry to the selective part of the school in Year 7. They make outstanding progress during Key Stages 3 and 4, with most students gaining A\* or A grades at GCSE. Students are exceptionally well prepared for further study and the great majority of those who continue with mathematics at A level achieve A\* to B grades.
- Students want and expect mathematics to make sense. They become very proficient in topics like algebra, trigonometry and graphical work by completing progressively more challenging exercises. Their skills in exploring mathematical ideas, asking their own questions and justifying their responses are outstanding. Students develop a good understanding of the nature of proof because they are taught to prove statements and to criticise purported proofs.

- The large, non-selective sixth form attracts students from many other schools. The mathematical backgrounds of these students vary considerably and relatively few take mathematics. Nevertheless, they quickly respond to the high expectations of the school and the extra support provided. They make good progress from their starting points.
- Students are very positive about mathematics. They enjoy being challenged in the secure knowledge that support will be available in any areas where they remain unsure. They are willing to tackle novel problems because this is a regular part of their experience. They are highly involved in the many extra-curricular mathematical activities on offer.

### **Quality of teaching in mathematics**

The quality of teaching in mathematics is outstanding.

- Teaching is outstanding because teachers consistently aim to build students' understanding. Learning objectives that take into account the range of abilities are shared with students at the beginning of each lesson. Assessment is a very strong feature of the teaching style, with teachers using individual interactions to support or stretch as necessary and also to shape future teaching according to what they observe. High-quality questioning ensures that students understand key concepts.
- Lessons are designed to make students think for themselves so that they gradually make sense of topics rather than simply following instructions. Lessons are typically a well-paced mix of exploration, discussion and exercises, some tackled individually and others in pairs or larger groups. Teachers use a wide range of resources effectively, including information and communication technology, to explain and reinforce lesson objectives.
- Teachers devote a good proportion of each lesson to circulating as students work. They are skilled at identifying and remedying misconceptions. Their very good subject expertise means that they can anticipate the most common issues that will arise, allowing students to make mistakes and learn from them.
- Students are used to checking their own work and taking responsibility for seeking help when needed. However, the department's system of regular assessments and common homework tasks is used to double check that students who need support are getting it. Teachers mark diagnostically and guide students well on how to improve specific aspects of their work.

### **Quality of the curriculum in mathematics**

The quality of the curriculum in mathematics is outstanding.

- The curriculum is mathematically very rich with a strong emphasis on using and applying mathematics. Topics are routinely covered in greater depth than demanded by examination specifications, to help prepare students for the next level. In one outstanding Year 11 lesson, students used graph-plotting software to investigate the transformations of graphs.

The opportunity to explore for themselves led students to a deeper level of understanding, preparing them very well for A-level work.

- The schemes of work provide a very good framework for planning lessons. They guide teachers in the best resources and teaching approaches to use. The quality and variety of teaching resources are excellent. Particularly impressive are the resources used to teach students the concept of proof.
- Extra-curricular activities such as competitions, World Maths Day, 'pi week' and student-led master-classes for primary pupils, contribute strongly to students' intellectual, spiritual, moral, social and cultural development. The lunchtime support classes are highly regarded by students. The school library has a good and well-used stock of popular mathematics books.

### **Effectiveness of leadership and management in mathematics**

The effectiveness of leadership and management in mathematics is outstanding.

- Senior leaders have a good knowledge of the strengths and the few areas for improvement in mathematics. They respect the mathematical expertise in the department. Their confidence in the head of department is evident in their light-touch monitoring of teaching and learning. The departmental self-evaluation is extremely detailed and provides an accurate analysis.
- One of the strengths of the mathematics department is the high level of consistency in teaching approaches. Teachers are regularly invited to share resources and teaching strategies both within the school and with teachers from neighbouring schools. Delegation of responsibility is used in a highly effective way to build leadership capacity in the department.
- The school is well aware that some students who join at the sixth-form stage find the algebra and the pace of work quite tough. The department is working at ways of reducing the gaps in performance, partly through liaison with the partner secondary schools and partly through extra provision, such as the well-received A/A\* conference for students in the grammar school and local schools.

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

- increasing participation in mathematics among students joining the sixth form from other schools and further raising their achievement.

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.

Yours sincerely

**Stephen Abbott**  
**Her Majesty's Inspector**