

12 October 2006

Mrs A C Foster
Headteacher
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Dear Mrs Foster

Ofsted 2006-07 survey inspection programme – mathematics

Thank you for your hospitality and co-operation, and that of your staff, during my visit on 09 and 10 October 2006 to look at work in mathematics. As outlined in my initial letter, as well as looking at key areas of the subject, the visit had a particular focus on pupils' enjoyment and understanding of 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.

The evidence used to inform the judgements made included: interviews with staff and pupils, scrutiny of relevant documentation, analysis of pupils' work, observation of seven lessons and consideration of the impact of Engineering College status on the work in mathematics.

The overall effectiveness of the subject, mathematics, was judged to be satisfactory.

Achievement and standards

- Pupils achieve satisfactorily overall in Key Stage 3. Standards are broadly average in Year 9, which is mirrored in pupils' results in national tests. These have risen in the last three years. This is because the school is tackling consistently the underachievement in all year groups of some lower and middle ability pupils, mainly boys.
- Pupils' performance at GCSE is improving too, but not as quickly as in Key Stage 3. Currently, standards are below average in Year 11, but rising. The school has evidence to show that a greater proportion of pupils in Year 11 is working now at grade C or higher than at the corresponding time last year, and that the predicted target is realistic. Progress in Year 11 is satisfactory taking into account the ability range of the year group.
- Higher-attaining pupils and those with learning difficulties and/or disabilities achieve well throughout the school. The strengths in pupils' work lie in their persistence in working through routine exercises. They are less confident when

using algebra and when applying what they know to complex operations and problem-solving.

- Pupils' personal development is good. Most pupils respond well to the teachers' enthusiasm and say that they enjoy mathematics, even when they find it difficult. The new course in Year 7 'Engineering for the Future' is raising pupils' self-esteem and confidence. Through practising skills such as team work, reflecting and improving, finding and using information, communication and creative thinking pupils are successfully learning how to learn.

Quality of teaching and learning

- Teaching and learning are satisfactory overall. Some good practice was observed that tested out pupils' prior learning and provided opportunities for them to reason and extrapolate answers from known facts. For example, in a lesson in Year 9, pupils queried and then thought through for themselves why a linear graph used to determine taxi fares did not necessarily have to pass through the origin. Teachers have good subject knowledge. They use this well in questioning to build on pupils' responses and to extract reasons for misconceptions.
- The marking of pupils' written work is informative in helping them to know what to do to improve, but not all pupils act on the advice given.
- Teaching is not yet having its full impact on learning because the assessment system does not provide teachers with information about pupils' progress at sufficiently frequent intervals. Consequently, valuable opportunities are missed to intervene at times when pupils need extra support to keep their work on target. Regular and frequent assessment has been introduced for all year groups this year. This is enabling teachers to react quickly when pupils' progress falls short of that expected. It has already resulted in intervention and additional support in Year 11.

Quality of the curriculum

- The curriculum is good. It is closely linked to aspects of the school's work as an Engineering College and is underpinned by good strategies for teaching, consolidating and practising basic numerical skills.
- The innovative course introduced recently in Year 7 is rapidly improving pupils' learning skills. Pupils speak highly of this course: 'it's fun, but serious; it helps us to see what we're good at and to understand that it's the combination of all our skills that's important'.
- The promotion of skills in information and communication technology, language and numeracy is evident in lessons, a typical example being an engineering lesson in Year 10 in which pupils manipulated remote controls to signal and explain their answers to mental calculations of mathematical functions. Pupils worked excitedly, competing with each other, because the activity ignited their enthusiasm through its focus on cars and motor racing.

Leadership and management

- The leadership and management of mathematics are satisfactory. The school's self-critical evaluation of standards and achievement in mathematics has led to clear identification of priorities and subsequent action. As a result, standards are rising progressively from Year 7 upward.
- New practices have been introduced this year to speed progress through follow-up action to more regular assessment. There is good support for this from the team of well-qualified teachers and morale is high. Pupils have noticed the higher level of expectation this year. Some in Year 11 said; 'we are being pushed much harder this year to meet the targets that have been predicted for us; we think that we can achieve them'.

Subject issue: pupils' enjoyment and understanding of mathematics

Pupils appear to enjoy mathematics. They say that it is satisfying when they get the right answers and that the teachers' comments on their written work are helpful. Discussion with pupils implied that there was a greater emphasis in lessons this year on applying mathematical processes in unfamiliar situations. The lessons observed confirmed this and provided good evidence of open-ended work. Collaborative working in pairs or groups of pupils produced healthy debate and sometimes argument. For example, in a Year 11 lesson, pupils reasoned out best buys from amongst products. It was interesting to hear them discuss whether or not to take quality into consideration, and, if so, how to determine it. Partnerships with local engineering firms are raising pupils' awareness of the relevance of mathematics to industry and to the national economy.

Inclusion

Not all pupils achieve equally well because the assessment system does not systematically pick up and remedy underachievement quickly enough. Consequently, those pupils who are not self-motivated do not do enough to sustain steady progress towards their end-of-year targets. The pupils most vulnerable to underachievement, mainly boys, are those whose attainment in national tests at the ages of 11 and 14 is just below average for their age. Higher-attaining pupils are challenged suitably; most respond well. The support for pupils with learning difficulties and/or disabilities is effective; they make good progress.

Areas for improvement, which we discussed, included:

- raise standards in mathematics in Key Stage 4
- assess pupils' work at regular intervals during the year and take effective action to remedy underachievement
- include more problem-solving and open-ended work in lessons.

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

As I explained previously, a copy of this letter will be sent to your local authority and will be published on Ofsted's website. It will also be available to the team for your next institutional inspection.

Yours sincerely

June Tracey
Additional Inspector