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09 February 2007

Mr S Flavin
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Dear Mr Flavin

Ofsted survey inspection programme – Science

Thank you for your hospitality and co-operation, and that of your staff and students, during my visit on 06 - 07 February 2007 to look at work in science.

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. All feedback letters will be published on the Ofsted website at the end of each half-term.

The evidence used to inform the judgements made included: interviews with staff and students, scrutiny of relevant documentation, analysis of students' work and observation of lessons.

The overall effectiveness of science was judged to be satisfactory, but with some good features. Attainment had shown steady, and sometimes significant, improvement over a three year period, but fell in 2006. The school has identified the underlying causes and put a number of very good strategies in place. It is too early to judge the impact of these and some are yet to be fully embedded in practice. The recently appointed director of science shows very good leadership and the department has very good capacity to improve.

Achievement and standards

Achievement and standards in science are satisfactory.

- Attainment at the end of Key Stage 3 showed good improvement over a three year period up to 2005. However, in 2006 attainment fell. Whilst performance at higher levels was maintained, that of a large group of middle performing students was significantly below previous

years and conversion rates from Key Stage 2 levels for these students was weak.

- The large majority of students in Key Stage 4 follow a vocational route in science: GNVQ in Year 11 and BTEC in Year 10. The proportion of students achieving a pass is high and shows good improvement over three years, including in 2006, although too few students achieve merit and distinction level. Too many students taking three sciences at GCSE underperformed in 2006.
- The standard of work seen in lessons is at the expected level, and progress at least satisfactory and better than this in one-third of lessons.
- The key cause of underachievement is weaknesses in monitoring and target setting; too few pupils are clear about their current levels and what to do to improve. Significant strategies have been put into place to deal with this, but practice is too variable across classes.
- At Key Stage 4 the introduction of GNVQ served its original purpose well, but too little attention is given to moving students onto merit and distinction levels. Many Year 11 students have no clear idea about how to make progress. Those following courses leading to GCSE in all of the separate sciences know their current and target grades, but have little idea what they need to do to achieve their targets.
- In Year 10, the introduction of the BTEC course for the large majority of students has transformed this; each assignment clearly spells out the grade criteria for pass, merit and distinction and each assignment is very well structured with regular monitoring against the grade criteria. Year 10 students have a much clearer idea about where they are and what to do to improve, although there is some variation across classes and this very good practice is not firmly embedded by all teachers.

Quality of teaching and learning in science

The overall quality of teaching and learning in science is satisfactory.

- All lessons have some very good features, in particular: the calm but purposeful learning environment; the excellent relationships between teachers and students; and students' positive attitudes to science. In a small number, around one in four, excellent attention is given to the needs of individual students to ensure all make good progress.
- Extensive and good use is made of practical work with a clear purpose. Students have good levels of practical organisation and skills, although, in some classes, they are unclear about why they were doing the practical – other than 'for coursework'.
- The school recognises the large number of students with low levels of literacy. There is a very sensible approach to writing in science with all writing having a clear purpose.
- Very good use is made of ICT to support students' learning in science.

- Whilst all teachers are good teachers, more than half of lessons are not good science lessons. In particular, students are not encouraged to think scientifically - to draw upon their scientific understanding to think about what might happen and why, and when drawing conclusions.
- In about half of lessons practical activity is not managed effectively to ensure that all students are involved.
- The marking of students work often does not clearly indicate what they need to do to improve their understanding of the science.

Quality of curriculum

The quality of the curriculum is good.

- The Key Stage 3 schemes of work have been improved to provide a very clear focus on those aspects of science where students' achievements need to improve.
- In Key Stage 4 the extensive use of vocational courses is matched well to the needs of those students. Good attention is now being given to progress from pass to merit and distinction levels.
- The proportion of students taking three separate science GCSE has been reduced with the selection of these students carefully matched to both aptitude and future ambitions.
- Work is being undertaken to ensure that the needs of lower attaining students are well catered for.
- There are concerns about 14-19 progression routes, but the school is doing all it can to work with local post-16 institutions to resolve this.

Leadership and management of science

Leadership and management of science are good.

- Self-evaluation in science is detailed, precise and makes very good use of evidence and data; self-evaluation is fully embedded in improvement planning. However, judgements on the quality of teaching and learning in science are over-generous as there is insufficient focus on the quality of lessons as science lessons.
- The science action plan has very clear targets and makes good use of data and evidence. The outcomes are clear with clear indication of the data that will be used to monitor and evaluate achievement of the targets.
- A wide range of good strategies has been put in place this year to improve performance in both Key Stages 3 and 4. In particular: the use of displays of samples of levelled work, good quality charts to indicate what is required for each level; the introduction of specific lessons into each topic to focus on particular aspects of scientific enquiry; and the use of precise assessment criteria for assignments, with a clear indication of what is required at each level or grade.

- However, the application of these good strategies is inconsistent and not yet embedded in practice. Whilst the director of science undertakes extensive monitoring, he has insufficient time to observe teaching or to provide coaching and support.

Inclusion

The provision for inclusion in science is outstanding.

- There is a very broad mix of students from a wide range of ethnic and cultural backgrounds in the school. The proportion who do not have English as their first language is high, with more than thirty different languages identified. In science lessons, all students are very well integrated with teachers making valiant efforts to support each individual student. Group work is very carefully planned, for example, to use self-supporting groups or to mix groups up to provide support from other students. This also enables teachers to target their interventions effectively. Relationships between individual and groups of students are excellent, as they are with teachers.
- In addition to learning difficulty support from teaching assistants, there is a teaching assistant attached to science, who is deployed well.

Areas for improvement, which we discussed, included:

- ensuring that all students are clear about their levels of performance, setting them precise targets and improving the quality of the feedback to support their progress
- developing students' skills in scientific reasoning
- providing the director of science with time and support to ensure that the good practice in the department is applied consistently and fully embedded.

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

As I explained in my previous letter, 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

Jim Sage
Her Majesty's Inspector