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Mr L Burton
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Dear Mr Burton

Ofsted 2012–13 subject survey inspection programme: science

Thank you for your hospitality and cooperation, and that of your staff and students, during my visit on 13 and 14 February 2013 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 without their consent.

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

The overall effectiveness of science is good.

Achievement in science

Achievement in science is good.

- Students start in year 7 slightly below average academic standards. Most students make good progress in science, throughout the school, so that by Year 11 most achieved above average standards in science. Good achievement is common students who speak English as an additional language, girls, students known to be eligible for free school meals and students who are disabled or have special educational needs.
- About a third of students take three separate GCSE's, achieve very well and for them, science is their best subject. Their standards are above the national average for these subjects. Currently other students study core and additional science, which has been successful in the past. But in 2011 and 2012 some students studying double applied science underachieved.

- Students enjoy science lessons. They like practical work, and finding out about how scientific ideas work for themselves. They also like the challenge of the big ideas in science, and want to achieve well. That motivation is the result of personal encouragement, support and determined 'pushing' by teachers.
- Students who have been on science based trips found them helpful. They value the extra revision clubs that are freely available. In these sessions, students receive personalised tuition on detailed areas of science that teachers have identified as needing improvement.
- Students enjoy the 'debating' activities that have recently been developed jointly with English and drama colleagues; this approach is boosting literacy skills in an enjoyable way, alongside deepening students understanding of science at work in the world.

Quality of teaching in science

The quality of teaching in science is good.

- Brisk pace and high academic demand are the two characteristics of most of the teaching. Practical work forms a strong part of teaching science. This allows students to discover the concepts for themselves. For example, Year 11 students made electric motors from the basic parts, discovering the clever idea of 'brushes and commutators', and also the pleasure of putting into practice basic electromagnetic theory.
- Occasionally, opportunities are missed for students to plan and carry out investigations from the beginning. This limits their opportunity to think for themselves in a new situation.
- Lessons are thoroughly planned, aided by a powerful in-house computer resource management application. There are plenty of practical activities, and written resources for supporting different abilities of students.
- There are excellent teacher-pupil relationships that students' value and respect. That sustains a very positive learning ethos, allowing students to raise questions, and contribute their own thinking in discussions.
- Where teaching required improvement, the common shortfall was in the timing of activities; sometimes too much time was taken up in repetitive tasks. Some students completed tasks quickly than planned, and then had to wait to move on whilst a whole class 'discussion' took place.
- Science homework varies in its value and impact on learning, and is part of a wider school review. Younger pupils are familiar with using the virtual learning network from home.

Quality of the curriculum in science

The quality of the curriculum in science is good.

- Key Stage 4 science courses are now entirely academic. The good subject knowledge of all science teachers allows students to learn the depth and

detail behind the big ideas of science, starting in Year 7. This refreshingly high academic expectation includes all learners, irrespective of their ability.

- Science lessons account for only 16% of total teaching time in Key Stage 4, including triple science. This time pressure is relieved by starting the courses in Year 9, and by the revision club programme that most students enthusiastically attend.
- Most laboratories have excellent displays of student work, and of the history of science; there are many other good science displays in the department and around the school.
- There are some whole school trips and visits with a science theme, to local industrial settings, but no visiting science professionals. Some gifted and talented students do visit university science faculties.

Effectiveness of leadership in, and management of, science

The effectiveness of leadership in, and management of, science is outstanding.

- There is excellent monitoring and evaluation of student outcomes in science, that drives decisive action to resolve weaknesses. Senior leaders, and the department leadership team, work exceptionally well together to promote high standards. This results in the shared and successfully delivered approach to pushing science learning beyond GCSE limits.
- The school-wide approach to professional development through coaching triads, is very effectively developing cross curricular links between science and other subjects colleagues that is enhancing scientific literacy
- The excellent organisation of resources, and common electronic access to them, allows teachers and technicians to coordinate practical work.

Areas for improvement, which we discussed, include:

- maximising the opportunities for students to develop their independent research, and planning of practical investigations
- consistently using the information teachers are gathering through their good active assessment of learning to adjust teaching activities that maximise individual engagement.

I hope that these observations are useful as you continue to develop science 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. A copy of this letter is also being sent to your local authority.

Yours sincerely

Brian Cartwright
Her Majesty's Inspector