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Ms V Swaida
Headteacher
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Dear Ms Swaida

Ofsted 2009-10 subject survey inspection programme: science post-16

Thank you for your hospitality and cooperation, and that of the staff and students, during my visit on 10 and 11 March 2010 to look at work in science.

As outlined in the initial letter, the visit had a particular focus on the sciences in the sixth form.

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 included interviews with staff and students, scrutiny of relevant documentation, analysis of students' work and observation of six lessons.

The overall effectiveness of science is satisfactory.

Achievement in science

Attainment in sixth-form sciences is inadequate.

- Standards for GCE A and AS level sciences have been significantly below national averages for the past three years and have not improved. Pass rates in 2009 for biology, chemistry and physics were low. However, the pass rate for BTEC National applied biology was good in 2009.
- The proportion of passes at grades A and B was above national averages in physics A level but well below average in biology and chemistry.

- The proportion of students gaining grades A* to C at GCSE in separate sciences was at national average in 2009 and the students that then went on to study advanced science courses at Barnwell were better qualified than the past few years.
- Students generally make progress at or below that predicted by their previous attainment in chemistry and biology. However, students on physics and applied biology courses make good progress.
- Retention has improved over the past two years and, although generally good, was low in chemistry in 2009. Attendance has also improved.
- Students show enthusiasm for their science subjects and approach their studies in a mature and conscientious manner. Their written work is of an appropriate standard and they work safely in the laboratories.

Quality of teaching in science

The quality of teaching in science is satisfactory.

- Lessons are planned well and teachers use information and communication technology effectively to introduce lessons and key ideas.
- In the most effective lessons, a variety of well-structured activities engaged students' interest and set them challenging tasks. Appropriate, relevant and interesting practical work was well integrated into lessons. Students are active and are asked to explain and justify their findings. In addition, the teachers assiduously check that learning is taking place.
- However, some lessons do not have enough interesting activities, the teachers talk for too long and the students are passive. The students are not always clear what to record or if they have made enough progress. Teachers do not check students' understanding enough and move on when some students are still unsure. Activities are not differentiated to take into account different abilities and learning styles.
- Assessment has improved and a more rigorous tracking and monitoring system is now in place. However, marking is not diagnostic enough to ensure that students are clear about exactly what to do to improve. Students report that target grades are in place but some feel that they are not challenging enough.
- Assessment for learning has yet to impact fully on students' rate of progress.

Quality of the curriculum in science

The quality of the curriculum in science is good.

- The Key Stage 4 science curriculum has recently been improved to meet the needs and abilities of the students. As a result, the students are better prepared to enter the sixth form to study sciences.

- The school is part of a town-wide sixth-form collaboration which gives students a good choice of science and science-based courses to choose from.
- Enrichment activities are good and there is a well considered programme of museum visits, visiting speakers, engineering projects and ecology fieldwork to interest and enthuse the students. However, managers recognise that work experience for BTEC students is underdeveloped.

Effectiveness of leadership and management in science

The effectiveness of the leadership and management in science is satisfactory.

- New management across the school has brought more focus to raising standards for students studying sciences in the sixth form. Roles and responsibilities have been clarified and curriculum management of the science subjects reviewed.
- The science team now monitors students' progress much more closely and tracks attainments carefully. However, remedial action to improve students' progress is inconsistent.
- Morale is high in the sciences. Continuing professional development is well organised and science teachers have had access to appropriate 'in-house' and external training. The laboratory technicians are highly effective and give good support to teaching and learning.
- Resources are satisfactory. The laboratories are old but fit for purpose. Specialist equipment is satisfactory. Some microscopes are not suitable for A-level work and some electrical equipment needs renewing.
- The science development plan does not focus enough on what needs to be done to raise standards in the sixth-form sciences. The recently updated school self-evaluation form and school development plan are realistic and contain clear, measurable targets. The science team should translate these targets into actions to bring about raised successes for students.

Areas for improvement, which we discussed, include:

- raising attainment in AS and A-level sciences
- improving retention in chemistry
- ensuring that students' learning in lessons is checked thoroughly
- developing more differentiated activities to meet the full range of abilities and learning styles
- ensuring that marking is more diagnostic and students are clear on what needs to be done to improve
- developing more extensive work experience for BTEC students
- using the school development plan targets to produce an action plan for the science department to improve outcomes for students.

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

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

Yours sincerely

Alex Falconer
Her Majesty's Inspector