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Mr S Jackson
Headteacher
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Dear Mr Jackson

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 16 and 17 October 2012 to look at work in subject.

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; observation of 13 lessons; observation of after-school Science, Technology, Engineering and Maths (STEM) club.

The overall effectiveness of subject is outstanding.

Achievement in science

Achievement in science is outstanding.

- All Key Stage 4 students up to 2012 study the three separate sciences at GCSE and attain well above average standards in examinations. Their exceptional depth and breadth of science knowledge, skills and understanding goes well beyond the requirements of the examination syllabus. A key causal factor sustaining these high standards is the high quality of their independent learning, personal research and enquiry.
- Outstanding progress is being made by almost every student irrespective of their background or circumstance, including disabled pupils and those who have special educational needs. This is because most lessons include very challenging activities, pitched accurately to individual students' prior attainment, that motivate students of all abilities.

- Almost every lesson is centred upon scientific enquiry, either through practical investigations or research into scientific phenomena and applications. Students very much enjoy learning science this way, and develop a keen enthusiasm for further study beyond lessons.
- About a third of students are studying one or more sciences in the sixth form, which is much higher than the national average. Sixth form attainment is at or above average and improving in most science courses. Sixth form students make good progress and continue to a science or engineering degree or career.

Quality of teaching in science

The quality of teaching in science is outstanding.

- The development of independent learning skills, particularly in Key Stage 4 and the sixth form, features heavily in lessons and is systematically built into schemes of work. These lessons fully exploit every opportunity for practical investigations and cement deep learning and understanding of scientific issues that interest both students and staff. Teachers extend the learning extremely effectively and encourage inquisitive questioning from students.
- Occasionally, in Key Stage 3, teachers' over-reliance on worksheets and closed short-answer questions limits opportunities for students to develop their literacy skills by explaining their thinking in their own words. This approach also restricts opportunities for teachers to identify students' misconceptions. Nevertheless, the academic demand remains consistently high.
- Marking is regular and usually detailed enough to identify strengths and weaknesses in the written responses of students, followed by straightforward suggestions for further improvement. Some excellent marking practice in biology is being shared with the other science teams.
- Teachers have very high levels of subject expertise. A particular strength is their first-hand experience of working as scientists and engineers prior to becoming teachers. It allows them to stretch students' understanding of the application of science through contemporary contexts.

Quality of the curriculum in science

The quality of the curriculum in science is outstanding.

- Students follow separate science programmes taught by subject specialists from Year 7 onwards. To date, all students have taken the separate science GCSE's, and achieved very well. From this year, about a third of Year 10 students of typically average attainment are studying core and additional science, in the same overall time as triple science students. This is leading to higher science coursework grades than for similar students in previous years.
- In addition to separate science A-levels, students can study applied science or psychology A-level. Some sixth form students take an Extended

Project Qualification award using a science topic as the context. The award further enhances the quality of their independent learning.

- Extracurricular activities cover a vast range of topics, including popular astronomy, engineering, environmental science, and STEM clubs, trips to local and national science exhibitions, universities and industrial settings. Professional scientists visit regularly, helping with projects and giving students first-hand understanding of future careers.
- Information and communication technology (ICT) is used seamlessly by students within lessons in support of independent learning and makes a substantial contribution to their learning of science. Teachers make excellent use of presentational software to illuminate science content that would be impossible to carry out in a school laboratory.

Effectiveness of leadership in, and management of, science

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

- The head of science and senior leaders model a clear vision for science education that emphasises scientific enquiry, and the role, impact and ethical implications of science in society. Sufficient, and well-managed, practical resources ensure effective investigative science learning.
- Frequent review of student achievement drives continuous improvement to the overall science curriculum, and to individual topics. This process involves all staff. There is a vibrant culture of professional discussion of science within and between subject strands that sustains high expectations of what students can achieve.
- Systematic professional development is guided by clear, mutually agreed performance management activity. Staff are confident, through personal experience, that the school enables their continuing improvement.
- Good links with other schools allow teachers to improve their own teaching competence through providing training for other teachers, for example in supporting triple science skills in the region.

Areas for improvement, which we discussed, include:

- reviewing the way literacy can be enhanced through science teaching and learning, particularly in relation to the effectiveness of Key Stage 3 worksheets.

I hope that these observations are useful as you continue to develop subject 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

Brian Cartwright
Her Majesty's Inspector