

Aviation House  
125 Kingsway  
London  
WC2B 6SE

T 0300 123 1231  
F 020 7421 6855  
[enquiries@ofsted.gov.uk](mailto:enquiries@ofsted.gov.uk)  
[www.ofsted.gov.uk](http://www.ofsted.gov.uk)



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Mrs J Walker  
Principal  
Knowsley Park Centre for Learning  
Knowsley Park Lane  
Prescot  
Liverpool  
L34 3NB

Dear Mrs Walker

### **Ofsted 2013–14 subject survey inspection programme: mathematics**

Thank you for your hospitality and cooperation, and that of your staff and students, during my visit on 10 and 11 June 2013 to look at work in 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 without their consent.

The evidence used to inform the judgements included: interviews with staff and students; scrutiny of relevant documentation; analysis of students' work; and observation of nine lessons (six jointly with leaders) and two intervention sessions.

### **The overall effectiveness of mathematics requires improvement.**

#### **Achievement in mathematics requires improvement.**

- Attainment at GCSE was significantly below average in 2010–2012, albeit with a slowly rising trend. Students, particularly the more able, made inadequate progress given their starting points. Students known to be eligible for pupil premium funding did less well than their peers by more than one grade at GCSE in 2012, a gap similar to that seen nationally.
- The school has made considerable strides in raising achievement for the current cohort of Year 11 students, including the higher attainers as well as those at the grade C boundary. The picture from early GCSE entry results and the school's latest assessment information is more positive than for the same time last year. Attainment is likely to be closer to average but not all students will have overcome the legacy of underachievement from earlier years in the school.

- Achievement in Key Stage 3 is variable. While teachers' assessments show many students are on track to meet expectations, scrutiny of students' books and lesson observations indicate that achievement varies from one class to the next, and in different aspects of the mathematics curriculum.
- While students are increasingly proficient in using taught methods, their problem-solving skills and ability to reason mathematically are less well developed. Many students rely on their teachers for prompts rather than thinking for themselves. Occasionally, students' progress is hampered by weak basic number skills.
- Students respond well where teaching and relationships are strong. At other times, they tend to be compliant and lack enthusiasm, occasionally engaging in off-task chatter.

### **Teaching in mathematics requires improvement.**

- While much of the teaching requires improvement, some teaching, particularly in Key Stage 4, is good. Strengths of the better practice include well-sequenced learning that builds progression in and makes links between mathematical topics. These teachers focus their explanations on 'why' as well as 'how', and anticipate where students are likely to misunderstand. They question to check and probe understanding, observe students closely while they are working, and make timely teaching points.
- The weaker teaching focuses on students' proficiency in taught methods, with examination questions often in mind, and set exercises tend to be repetitive in nature. Images, practical models and information and communication technology (ICT) are not drawn upon sufficiently to support deeper understanding of the methods.
- Inconsistencies in the teaching include the depth of planning and teaching approaches used, the integration of problem solving, the use of time, and the skill with which teachers assess how well students are learning. While teachers' marking is generally accurate, the regular use of on-line homework does not support accurate mathematical presentation.

### **The curriculum in mathematics requires improvement.**

- The Key Stage 4 scheme of work is based on an awarding body's GCSE specification. While it provides coverage of the curriculum, higher attainers might benefit from more work on algebra during Year 10.
- The new Key Stage 3 scheme is skeletal in nature. It provides insufficient guidance for teachers on good approaches and activities to use; models, images and practical apparatus to support understanding, including ICT; and the depth to which to topics should be developed. Problem solving is given a high profile in Year 7, but teachers require greater support in developing these important skills. Teachers share ideas informally but do not capture them in schemes of work to the benefit of all staff, particularly those who are not mathematics specialists.
- The department aims to motivate students through entering GCSE early and supports them with intervention sessions. Students are encouraged to strive for higher grades in subsequent sittings.

## **Leadership and management of mathematics require improvement.**

- The clear focus on improving outcomes in mathematics is having a positive impact. A departmental team spirit is emerging: in discussions, teachers were keen to discuss how their practice might be improved, an important factor, given the restructuring of leadership responsibilities in the subject.
- Senior leaders have concentrated on whole-school improvement of generic features of teaching. Signs of improvement are well judged and self-evaluation is accurate. The next steps are to focus on the subject specific, particularly in monitoring by subject and senior leaders. To date, lesson observation and work scrutiny has not proved effective in driving improvement because they have not been frequent enough or pinpointed weaknesses or inconsistencies. Follow up should be quick and robust.
- A good investment has been made in the subject-knowledge enhancement of the non-specialist teachers but this needs to be supplemented by better curricular guidance linked to the schemes of work and inputs at departmental meetings and on training days.
- The school uses data to track students' attainment and progress and intervene accordingly. Less emphasis has been given to the strategic use of data to guide improvement in teaching approaches and the curriculum.

## **Areas for improvement, which we discussed, include:**

- raising achievement by focusing on progression in strands of mathematics and the development of students' problem-solving and reasoning skills
- improving the quality of teaching by:
  - developing a systematic approach to improving characteristics of the teaching, drawing on existing good practice
  - increasing the emphasis on developing conceptual understanding
  - integrating problem solving in all topics
- providing guidance for teachers on approaches and activities that support conceptual understanding, including through practical resources, images and ICT, and make the intended levels of pitch and challenge clear
- improving leadership of the subject by:
  - sharpening the mathematical focus of monitoring activities
  - using data analysis and monitoring information strategically to strengthen teaching and the curriculum.

I hope that these observations are useful as you continue to develop mathematics in the school. As explained previously, 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

**Jane Jones**

**Her Majesty's Inspector**