



TEACHER RECRUITMENT CRISIS CAUSING A SCHOOL 'SCIENCE SHORTFALL', ESPECIALLY IN PHYSICS

NEW SUTTON TRUST REPORT FINDS POORER PUPILS MISS OUT MOST

Teaching is failing to attract enough specialist science graduates – particularly physics teachers - to meet the needs of the growing UK science-based industries, according to new research published today by the Sutton Trust. The report warns of a 'science shortfall' caused by the low numbers of biology, chemistry and physics graduates entering teacher training and finds that schools with high numbers of disadvantaged pupils are more likely to be affected.

Today's research brief, *Science Shortfall*, finds that there has been a consistent failure to attract science graduates into teaching over the past five years, with government recruitment targets missed in all three science subjects.

The problem is particularly pronounced in physics, which has now fallen short of its target in each of the past five years. In 2015 / 16, just 746 physics graduates entered teacher training, less than three-quarters of the government's target. Just 51% of physics teachers have a relevant degree.

The brief highlights regional differences in the proportion of science teachers with relevant degrees. Science teachers in London are more likely to hold a science degree than teachers elsewhere in the country. The biggest regional variations are for physics teachers: just over half of physics teachers in the East of England hold a relevant degree compared with 72% in Inner London.

Shortages of specialist teachers also make it harder to offer able GCSE students access to all three science subjects – physics, chemistry and biology – which makes it unlikely they will

study science A-levels or go on to study science at university. Only 13% of disadvantaged students took 'triple science' in 2013 compared to 30% of other students.

Whilst specialist subject qualifications are not the only measure of a good teacher, previous research by the Sutton Trust found that solid subject knowledge is one of the keys to effective teaching. Good teaching is particularly important for disadvantaged pupils. Over a school year, these pupils gain the equivalent of a year and a half of learning with very effective teachers, whereas the same pupils only advance by half a year with less effective teachers. In other words, for poor pupils the difference between a good teacher and a bad teacher is the same as a whole year of lessons.

But the Trust research finds that science teachers with a relevant degree are less likely to teach in secondary schools with high numbers of disadvantaged pupils. In the two-fifths of schools with the most disadvantaged pupils, 76% of science teachers possess a degree relevant to the subject they teach, compared to 83% in the two-fifths of schools with the least number of disadvantaged pupils.

Secondary school science teachers in the independent sector are more likely to have a relevant degree. Again the gap is particularly pronounced in physics, where 91% of private school teachers possess a relevant qualification compared with 78% of state school teachers.

By 2030 there are predicted to be more than 7 million jobs in UK science-based industries. In a post-Brexit Britain that may limit the immigration to Britain of highly qualified workers, there is an urgent need for the education system to meet that demand by increasing access to scientific knowledge, training and careers. To address the 'science shortfall' in state secondary schools, the Sutton Trust is recommending that:

- Incentives to address science teaching shortages should be targeted at schools in less advantaged areas.
- In schools with shortages of physics teachers or none at all, local authorities or Multi Academy Trusts should encourage teachers from other schools to offer continuous professional development courses.
- Further efforts need to be made to ensure that state school teachers have qualifications in the subjects they are teaching.

To widen access to STEM degrees and the wide range of careers they open up, the Sutton Trust has established Pathways to STEM. The programme supports academically able low

and middle-income state school students through the development of soft skills, a work placement, careers advice and a mentor.

Sir Peter Lampl, Founder and Chairman of the Sutton Trust and Chairman of the Education Endowment Foundation, said:

“The science, technology and engineering industries are set to be a major area of growth for the UK over the next few years and there are many fantastic and financial rewarding careers on offer for talented young people.

“But if we fail to attract enough science graduates into teaching there is a serious worry that young people will leave school without the specialist knowledge to access the opportunities that this growing industry will offer. It’s likely that this will have the biggest impact on bright but poor pupils who won’t go on to do science A levels or degrees without access to specialist teaching in subjects like physics.

“We need more incentives to attract the best science graduates into teaching. These need to be targeted at schools with high numbers of disadvantaged pupils.”

Charles Tracy, Head of Education at the Institute of Physics:

“Despite recent improvements in the number of specialist physics teachers being recruited, there is still a shortage. Whilst the data are not yet good enough to determine the full extent of the impact of this shortage, it is clear that there is a disproportionately large – and detrimental – effect on the progression rates on students from families with lower socio economic status.

“They are less likely to experience the benefits of a specialist physics teacher. Therefore, continuing to recruit high quality physics specialist teachers is not only a question of making the most of our young talent, it is also a question of social justice.”

For further information please contact Hilary Cornwell at the Sutton Trust on 020 7802 1660.

NOTES TO EDITORS:

1. The Sutton Trust is a foundation set up in 1997, dedicated to improving social mobility through education. It has published over 180 research studies and funded and evaluated programmes that have helped hundreds of thousands of young people of all ages, from early years through to access to the professions.
2. Data in the report includes figures from the Department for Education’s School Workforce Census, along with teacher surveys conducted by the National Foundation for Education

Research and the Independent Schools Council. Subject specialism is defined using standard DfE methodology for the relevance of post-A level qualifications to the subject taught.

3. The National Foundation for Educational Research (NFER) runs Teacher Voice omnibus surveys three times a year, in the autumn, spring and summer terms. A panel of 1,607 practising teachers from 1,362 schools in the maintained sector in England complete the survey. The panel is representative of teachers from the full range of roles in primary and secondary schools, from head teachers to newly qualified class teachers.