# All young people should do maths to age 18 yo prepare for today's workplace

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All young people should continue to study maths at least until they are 18, even if they have already gained a good GCSE in the subject, the Sutton Trust said today, because the GCSE curriculum fails to give them the practical skills they need in the modern workplace.

New research for the Trust shows that those who achieve a good GCSE grade by 16 need a new qualification covering statistics, modelling and other practical applications. The research by Professor Jeremy Hodgen and Dr Rachel Marks from King's College London, shows that maths is essential in many jobs that are not traditionally associated with the subject, and that it is crucial that young people have the skills to adapt what they have learnt at school to the workplace.

Far from being opposed by today's schoolchildren, polling by Ipsos MORI for the Sutton Trust of 2,595 11-16 year-olds, also released today, suggests that it would be a popular move: the poll reveals that nearly two-thirds of young people believe they should continue learning maths and English to age 18.

The new report reviews over 50 studies to examine the type of maths needed in today's workplace. It finds that while the GCSE mathematics curriculum covers the concepts that most workers will need, the curriculum does not equip young people to apply what they have learned.

Sir Peter Lampl, chairman of the Sutton Trust and of the Education Endowment Foundation, said: 'Few would proudly proclaim their illiteracy. Yet many happily say they are no good at maths. The education system reinforces this attitude. For the vast majority of young people, mathematics finishes with GCSEs. Unlike other developed countries, only one in seven young people studies advanced maths beyond 16.

'Maths matters too much to discontinue studying it at 16. Young people's ability to benefit fully from higher education and play a productive role in the workplace depends increasingly on their mathematical competence.'

The report's author, Jeremy Hodgen, Professor of Mathematics Education at King's College London, said: 'Our review suggests there are significant features of workplace mathematics not generally reflected in school mathematics. Changes in workplace practices have resulted in mathematical application and understanding becoming an essential skill for all workers, even in relatively unskilled jobs. Today's workplace has a wealth of numerical and graphical information. Making good use of this information requires mathematical skills.'

The report shows that today's workforce needs skills in mental arithmetic, estimation and approximation, reasoning, using and interpreting calculators or spreadsheets, and interpreting tables, graphs and diagrams. GCSE maths teaches these skills, but not their application.

For example, paediatric nurses need to have a good idea of the relationship of millilitres to milligrams in administering medicine. If they don't, the results could be fatal. Equally, a mortgage adviser is often presented with a simple graph explaining the savings a customer might make, but should be sufficiently knowledgeable to apply and explain that model and its assumptions to clients who don't fit expected patterns if they are to do their job successfully.

'Many workplace settings require the sophisticated use of these basic mathematical skills, particularly when workers are faced with modelling scenarios,' the report says. The report recommends that a new mathematics qualification should be developed for students not taking maths A-levels that covers fluency, modelling and statistics for 16-18 year-olds.

At present, only 20 per cent of young people continue studying maths post 16 in contrast to students in virtually all other OECD countries where the majority do so. Young people in England and Wales who have not gained at least a GCSE grade C will in future be expected to continue studying for a GCSE until at least the age of 18 if they are doing further school or college courses.

In the poll, 64 per cent of all young people support – including 17 per cent strongly supporting – the idea that all young people who are at school or college should study some English and maths until they are 18 years old. Although support declines a little as students approach GCSEs, the proposition is still supported by 53 per cent of Year 11s, with 35 per cent opposing the idea.

Provided by King's College London