29th January 2016

Dear Rt Hon Nicky Morgan MP

Science in the English baccalaureate

I am writing in response to the consultation on implementing the English baccalaureate (EBacc), specifically on the importance of including science appropriately. The Wellcome Trust is a global charitable foundation dedicated to improving health. We have a long standing commitment to making inspirational, high-quality science education available to all young people, spending around £9 million each year towards this aspiration.

The Government made a manifesto pledge to ‘make Britain the best place to study science and maths’ and we share this aspiration. To do this we believe it is essential that every young person studies a balance of biology, chemistry and physics until the end of key stage 4. However, the EBacc does not make this a requirement. It would be possible to achieve the science element of the EBacc by taking computer science as one of three science GCSEs instead of one of the core sciences. This is at odds with the National Curriculum, which states ‘curricula at key stage 4 should comprise approximately equal proportions of biology, chemistry and physics’.

The three core sciences - biology, chemistry and physics - contain knowledge that everyone should be familiar with to make informed decisions in their lives – from health to new technologies or sustainability. Furthermore, anyone wishing to progress in science post-16 may struggle to do so without having studied the breadth of all three core sciences up until that point.

Computer science should be in addition to the core sciences, but not instead of them. Computer science develops a valuable set of skills typically deployed across a wide range of disciplines, but it differs from the core sciences in many ways, for instance, lacking their basis in scientific inquiry and development of hands-on skills.

We know that increasing the number of students taking physics – especially the number of girls – is of particular importance to the Department and relevant to your role as Minister for Women and Equalities. We fear that gender imbalances will emerge if students are no longer required to study all three sciences.
For instance, more girls than boys might drop physics at age 14, as seen in Northern Ireland when studying three sciences at Key Stage 4 became optional in 2007.

The EBacc specification should explicitly communicate the requirement to study a balance of biology, chemistry and physics until age 16 — either as core and additional science GCSEs or as triple science. If some students choose to complement this with computer science, that would be even better.

Best wishes
Jeremy

Jeremy Farrar
Director, the Wellcome Trust