MATHEMATICAL/QUANTITATIVE SKILLS

The 'M' in 'STEM'
The 16-18 Year Old Landscape

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Background

- Review commissioned March 2016 by HMT/DfE
- Report currently with Ministers

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Key issues

- Importance of mathematical/quantitative skills to modern economy
- England: An outlier in Post 16 participation

International Comparisons

- Proportion of students in 'upper secondary' education/training studying any mathematics

All (95-100 per cent)	Czech Republic, Estonia, Finland, Japan, Korea, Russia, Sweden, Taiwan
Most (81-94 per cent)	Canada (BC), France, Germany, Hungary, Ireland, USA (Mass.)
Many (51-80 per cent)	Australia (NSW), Netherlands, New Zealand, Singapore
Some (21-50 per cent)	Hong Kong, Scotland, Spain
Few (6-20 per cent)	England, Wales, Northern Ireland

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Plus

- Gender/regional discrepancies
- Radical re-look at technical/vocational education (Sainsbury)

High level issues

- Pathways
- Participation
- Attainment
- Delivery

Pathways (i)

- A levels (AS) (recently reviewed)
- GCSEs (recently reviewed)
- Apprenticeships

Pathways (ii)

- Core Maths (recently introduced)
- Functional skills (under review)

Pathways (iii): Policy

- Response to Sainsbury?
- GCSE resits?
- Core maths: brand recognition/acceptance ?

Pathways (iv): Non-STEM issues

- Quantitative content of non-STEM A-levels
- HE influence; Q-step for social sciences
- HE influence; humanities (?)

Participation

- Employer/university pull
- Pathway availability
- Information/culture
- Gender/regional effects

Attainment

- Prior attainment
- Delivery quality

Delivery (i)

- School/college practices
- Teacher supply/quality
- Technology (?)

Delivery (ii)

- Funding formulae (incentives/disincentives)
- Incentives for teaching; recruitment/retention

Direction of travel

- Medium term
- Longer term

Medium term

- Ensure that students have the option to study maths
- Providing students with clearer guidance at an early age
- Strengthen the 'pull' to progress in maths from universities and employers

Longer term

- Near universal participation within 10 years
- Increased provision of appropriate pathways
- Increased capacity to deliver
- A culture that values mathematical and quantitative skills