

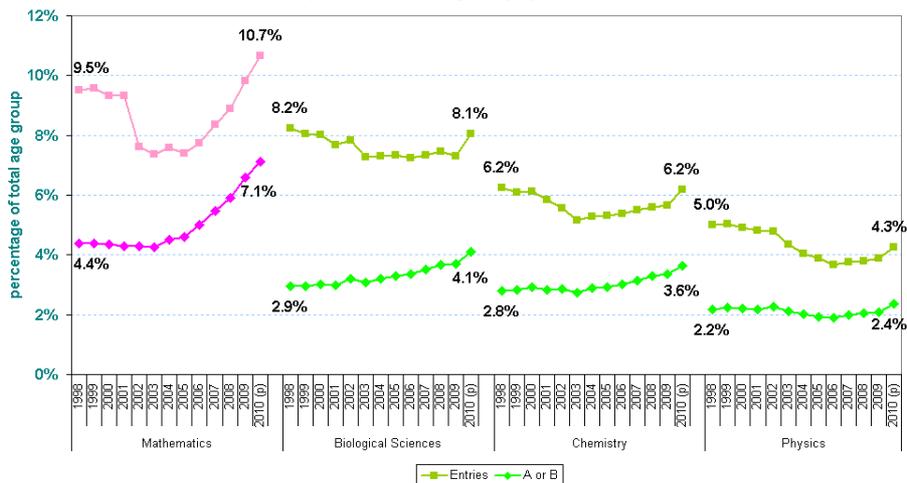
A Diversity of Talent

Professor Sir Adrian Smith
Director General, Knowledge and Innovation

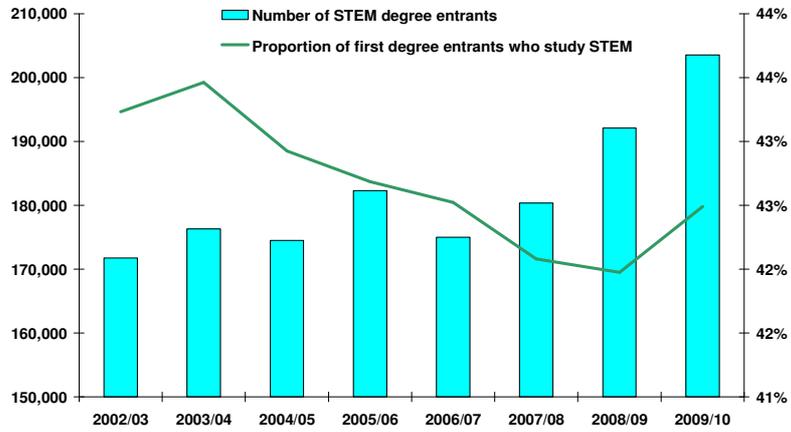
Royal Society of Edinburgh
27th October 2011

Headline STEM Statistics - Schools

Mathematics & Science A-Level Entry and Grade B+ Rates
(% of estimated age 17 population)



Headline STEM Statistics - HE



STEM Subjects are those covered by science, technology, engineering and mathematics courses

Securing the Pipeline



Securing the Pipeline

- Big Bang Fair – Sharp increases in numbers attending
 - 2011: 29,000
 - 2010: 20,000
 - 2009: 5,000
- The National Science and Engineering Competition attracted around 300 projects from which the Young Scientist and Young Engineer of the year were chosen
- STEMNET'S STEM Ambassadors programme has a network of 29,000 volunteers across the UK including 2980 in Scotland

Public Engagement with Science



Public Engagement with Science

- Science Festivals
 - National Festivals (including social sciences)
 - Regional Festivals (including Edinburgh)
 - British Science Festival will be held in Aberdeen in 2012
- Public Dialogues
 - Synthetic Biology
 - Wellbeing
 - Energy 2050
 - Low Carbon Communities
- Public Attitudes to Science Survey
 - 3 yearly survey
 - 2011 included the first survey of young people's attitudes to science

Gender trends in schools

- **A Level** – Girls outperforming boys in all subjects except French and Political Studies
- **A* grades** spread equally across boys and girls
- **GCSE** – Girls scoring more A*-A grades than boys
- **A* grades** – overall 8.2% of candidates scored A* - boys up to 8.2% from 7.9% and girls down from 8.3%

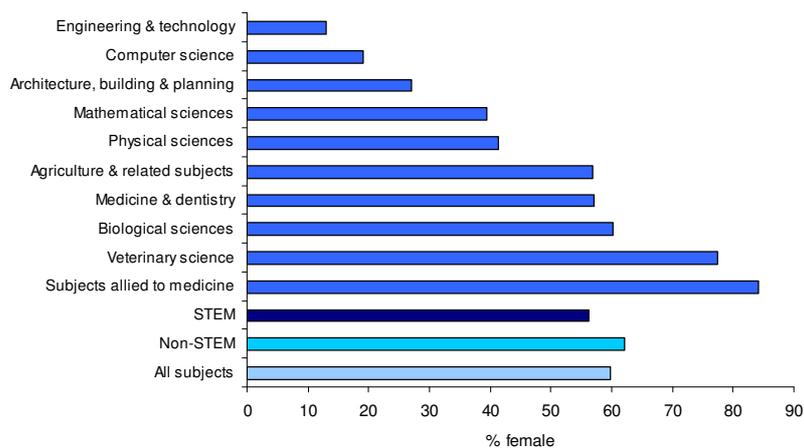
Performance in STEM Subjects

- Percentage of the cohort gaining A* at A Level
 - Some subjects still not as highly entered by girls as boys (physics, maths, further maths)

Subject	All Students	Males	Females
Maths	17.8%	18.2%	17.1%
Further Maths	27.5%	27.8%	26.9%
Biology	8.8%	8.1%	9.3%
Chemistry	9.4%	10.0%	8.7%
Physics	10.4%	10.2%	11.2%

- GCSE
 - Girls widening the gap in traditional subjects such as biology, chemistry, physics
 - Boys narrowly outperforming girls at maths

Percentage of UK-domiciled undergraduate entrants to UK HEIs who were female, 2009/10



Diversity in Academic Careers

- Several reports and bodies interested in the subject of diversity in academia

IOP Institute of Physics



Equality Challenge Unit



RSC | Advancing the
Chemical Sciences



Why is STEM Diversity Important?



Why is STEM Diversity Important?

- The business case for diversity:
 - Retention of talent
 - Money spent to train individuals
 - Making full use of all the talents available to the STEM workforce

BIS Approach to Diversity in STEM



Why Engineering and the RAEng?

- Engineering faces some of the greatest, often historically-based and ingrained diversity issues
- Academy's existing and excellent relationships with the diverse mix of engineering institutions
- Challenging the leadership at all levels to take on responsibility for delivering the change needed to promote equality
- National Academies stand for true excellence in UK science and engineering. We should look to them to help deliver world-class excellence in individuals.

Engineering Facts and Figures

- Women make up 12.3% of those employed in SET¹ occupations Women make up 6.9% of engineering professionals²
- This measure ranks us as lowest of all EU countries and has fallen from the 8.7% based on the 2007 Labour Force Survey (LFS) analysis^{2,3}
- Women are under-represented among all SET professionals other than Health and Health-associated professions.
- 13.2% of women and 6.8% of men employed in SET occupations are from BME groups. This includes SET and associated professions, health and SET skilled trades.
- Of BME women employed in SET professions, 8.7% are employed as engineering professionals. This is slightly higher than the 7.4% of white women employed in SET professions who are engineering professionals

1. Statistics available cover only the science, engineering and technology disciplines

2. ONS 2008, republished in UKRC Stats Guide 2010

3. LFS analysis in EngineeringUK 2011

Wider BIS Work on Diversity

- Lord Davies Review



Results

- Executive Search Companies have joined forces to develop a Voluntary Code of Conduct for head-hunters to abide by which was launched on Friday 22 July
- Existing training providers and network groups have been busy developing new initiatives identified to fill the gaps in current provision identified by Lord Davies and new groups, like the 30% club, have been formed.
- The Prime Minister has fully backed Lord Davies' review, he recently wrote a letter to FTSE 350 companies that had not published their aspirational targets asking them to do so.
- The Department has launched a consultation on narrative reporting which considers ways to achieve greater disclosure of the numbers of women at various levels within individual organisations..

Improvements in Board Appointments

- Within the FTSE 100:
 - Women now make up nearly 14.2% of directors, up from 12.5% in 2010
 - The number of all male boards now rests at 14, down from 21 in 2010
 - 23% of board appointments since 1 March 2011 have been women
- Within the FTSE 250:
 - Women now make up 8.9% of directors, up from 7.8% in 2010
 - 23% of board appointments since 1 March 2011 have been women

Female FTSE 350 Directorships

No FTSE 100		Male	Female
Directorships Oct 2010 to Sep 1 2011	1092	937	155 posts (14.2%)
Board Appointments March 1 to Sep 1 2011	93	72	21 (22.5%)

No FTSE 250		Male	Female
Directorships Oct 2010 to Sep 1 2011	1192	1014	178 posts (8.9%)
Board Appointments March 1 to Sep 1 2011	158	130	28 (18 %)

Statistics: Cranfield School of Management October 2011

Further Government Action on Diversity

- The Public Sector Equality Duty
 - Places certain responsibilities on public bodies
 - Greater emphasis on public bodies to actively consider equality in the work they do and the decisions they make

Conclusions

- Much good work going on
- Still more to do
- Welcome the work of the Royal Society of Edinburgh