

Communicating statistics

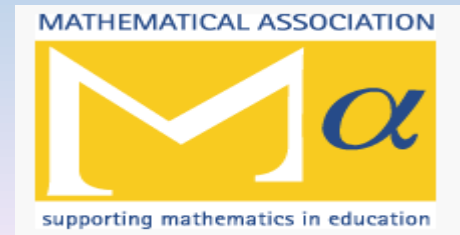
School outreach experiences

Jeff Ralph
University of Southampton
September 2018

Outline

- Mathematical Association local group
- RSS William Guy schools' lecturer
- STEM ambassador

1. Mathematical Association



Cheltenham and Gloucester branch

- Organised events between 2012 – 2017
- Three evening talks a year
- Private schools hosting
- Nine schools attending
- 50 – 150 students attending per session
- Wide range of speakers

Aims

- Demonstrate broad applicability of mathematics
- Make talks accessible but stretching
- Encourage a range of schools to attend
- Provide speaking opportunities
- Entertain!

Applications of mathematics

Application	Speaker	Title
Sport	Frank Duckworth	The Duckworth/Lewis method in one-day cricket
Biology	Sarah Jabbara (University of Birmingham)	Fighting disease with mathematics
Cyber-security	Richard Pinch (GCHQ)	Post-modern cryptography
Economics	Martin Cox (John Locke Institute)	Game theory
Physics	Trevor Ponman (University of Birmingham)	Information, uncertainty and the universe
Computing	Henry Harding (UCL)	Mathematics and machine learning
Engineering	David Ogle (EDF)	Mathematics in support of engineering

Applications of mathematics

Application	Speaker	Title
Statistics	Jennifer Davies (ONS)	Weather data in statistics
Statistics	Jeff Ralph (ONS)	Measuring the unmeasurable

Application	Speaker	Title
Mathematics	Vicky Neale (University of Oxford)	Prime numbers
Mathematics	Charlie Turner (University of Warwick)	Circles, Pythagoras and number theory

Observations

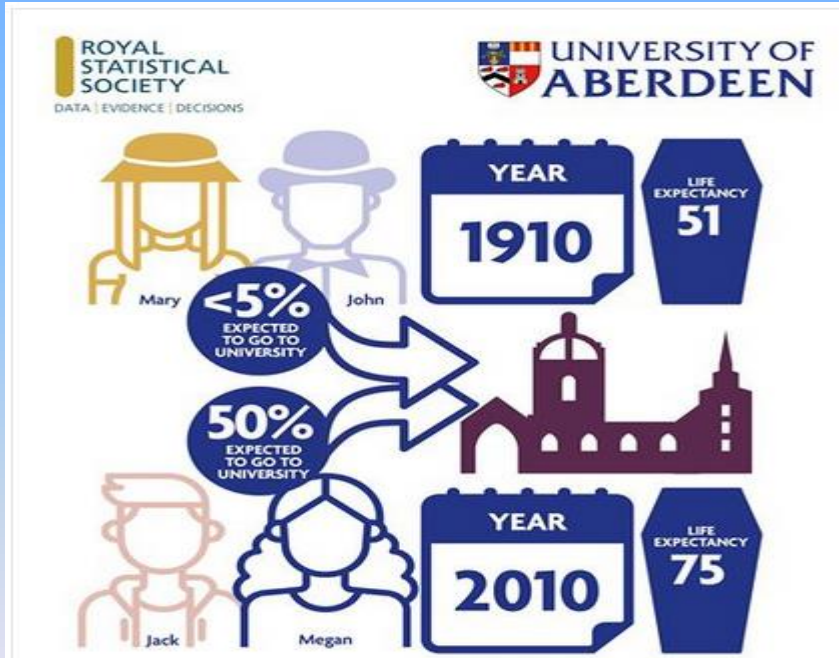
- A little more on two events ...
 - Frank Duckworth: Duckworth/Lewis method
 - Richard Pinch: Post-modern cryptography
- General points
 - Lecture format with interaction
 - Good attendance
 - Very enthusiastic responses
 - Best talks were pitched carefully

2. RSS William Guy schools' lecturer

William Guy lecturer role

- An RSS schools' lecturer appointed each year
 - Voluntary role for fellows
 - Existing record of school outreach
- Lecturers drawn from industry, education and academia
- Demonstrate an aspect of statistics
- Schools request the lecture

William Guy Lecture 2017-18



Society and teenagers - HOW STATISTICS REVEAL THE CHANGES IN YOUNG PEOPLE'S LIVES THROUGH THE LAST CENTURY

Wednesday 13 June 2018, 11am • University of Aberdeen, King's College
To book contact: schoolslecture@abdn.ac.uk

Topics

- Baby names
- University education
- Household income
 - Poverty and deprivation
 - Value of money
- Life expectancy
- About statistics

Underlying topics

- The importance of official statistics
- Numbers and commentary are required
- What makes a high quality statistic?
- How does a statistician think?
- Why statistics is a growth subject

William Guy Lecture events

Venue	Event
Plymouth University	Enrichment day for year 9 students
Coventry University	Nuffield projects day for sixth form students
Bullers Wood School, London	School talk
St Paul's Girls' School, London	School talk
Cardinal Newman College, Preston	School talk
*Belfast, Queens University	Belfast Science Festival event for schools
Cheltenham Ladies College	School talk
Bolton School	Pubic event
*Aberdeen University	University visit and school talk
Plymouth University	Enrichment day for year 9 students

Example schedule - Bolton

- Arrive 4pm, meet staff, get short tour
- Light supper with principal and senior staff
- Venue set-up and check
- Reception for students, parents and members of the public
- Official photos
- Deliver talk
- Questions ...

Observations

- Mixed audiences
 - Students, teachers, university staff, parents, public
- Mixed subjects being studied
 - Talk contains social context, history and maths
 - Maths, science, economics, health and social care and history
- Lots of questions!

3. STEM activities



Three events

- Careers day with several talks on statistics
- Speed interviewing of year 11 students
- CV writing, communication and interviewing for year 10-11 students

Observations

- Events are well organised
- Schools are very enthusiastic
- Students are mostly enthusiastic
- It's hard going but very rewarding