Neville Davies

Royal Statistical Society
Centre for Statistical Education
University of Plymouth, UK

www.rsscse.org.uk
www.censusatschool.org.uk
neville.davies@rsscse.org.uk

twitter.com/CensusAtSchool
What do we do?
Who are we?
How do we do it?
Where are we?
What we do:
promote improvement in statistical education

For people of all ages –
in primary and secondary schools, colleges,
higher education and the workplace

Cradle to grave
statistical education!
Royal Statistical Society Centre for Statistical Education – who we are
How do we do it?

Welcome to the RSSCSE

Thousands of students from 800 schools report the 2011 BBC News School Report Day

On the 24 March more than 30,000 pupils from around the UK turned their classroom into a newsroom for real as part of the BBC NEWS School Report. Children from England, Scotland, Wales and Northern Ireland covered the news, live on BBC Television, Radio and online.

The RSSCSE worked with the BBC NEWS School Report team on the annual event to provide help with the news of all sorts, by giving them the chance to make their own news.

The RSSCSE team and the BBC News School Report team worked with schoolteachers and pupils to design, write and produce an online survey comprising 29 questions that were of interest to school children aged 11-15. Over 320 of the BBC News School Report-registered secondary schools took part in the survey results live as part of the BBC NEWS School Report day that was transmitted from the University of Manchester, on 24 March. Neville Davies and Kate Richards took part in the survey results and interpreted the results from the survey.

READ MORE...

Funders for the RSSCSE

MTB support for RSSCSE
How do we do it?

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The results live as part of the BBC NEWS School Report day that was transmitted from Manchester, on 24 March. Neville Davies and Kate Richards took part in the survey and helped the schools interpret the results from the survey.

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‘Man of Rock’ Jain Stewart Presented CensusAtSchool Champion School Prizes
How do we do it?

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The RSSCSE team and the BBC News School Report team worked with schoolteachers and pupils to design, write and produce an online survey comprising 29 questions that were of interest to school children aged 11-13. Over 320 of the BBC News School Report-registered secondary schools took part in the survey, with results live as part of the BBC NEWS School Report day that was transmitted from the University of Plymouth in Manchester, on 24 March. Neville Davies and Kate Richards took part in the survey, interpreting the results from the survey.

MTB support for RSSCSE

Funders for the RSSCSE
Plymouth - on the border between Devon and Cornwall
Local attractions for visitors to RSSCSE - Plymouth harbour area

**Plymouth, the Sound**

By gomez
Misplaced? Inappropriate Comment
Panoramio
Upload your photos

Sponsored Links
Voted for You: Voted! By You
Carpenters in Plymouth ready to quote for your project
www.gazdekhairdos.co.uk

Student Storage
Store for the summer: free boxes & collection
www.plymouthboxroom.com

**Plymouth, Barbican in the night. SG**

By Sergei Gribin
Misplaced? Inappropriate Comment
Panoramio
Upload your photos

Sponsored Links
Novotel: £65 per room
Novotel Plymouth: 3 star contemporary hotel. Book now
www.novotel.com

Innitz Hotel
Central Location, competitive rates
www.innitzhotel.co.uk
The Royal Statistical Society (RSS) 10-year statistical literacy campaign, *getstats*

Aims to help build a society in which lives and choices are enriched by an understanding of statistics
What people know about statistics – before the getstats campaign – people in London, 2010
getstats Campaign Board
David Walker, Campaign Director

- John Pullinger, House of Commons Librarian (Chairman)
- Professor Ian Diamond, University of Aberdeen
- Professor Neville Davies, RSS Centre for Statistical Education
- Dr Martin Dougherty, RSS
- Mark Easton, BBC
- Keith Gilbey, Citizens Advice
- Professor Harvey Goldstein, University of Bristol
- Mike Harris, Institute of Directors
- Dr Julian Huppert MP, House of Commons
- Professor Denise Lievesley, King’s College London
- Professor John MacInnes, University of Edinburgh
- Jil Matheson, National Statistician
- Professor Bernard Silverman, Home Office
- Professor Chris Skinner, University of Southampton
- Professor David Spiegelhalter, University of Cambridge
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- Professor Bernard Silverman, Home Office
- Professor Chris Skinner, University of Southampton
- Professor David Spiegelhalter, University of Cambridge
Numbers are everywhere.

But mostly we don’t really get what they mean, even when they’re key to the important choices we make in our lives.

The getstats campaign is about turning this around – giving everyone the skills and confidence to use numbers well.

Otherwise as individuals and as a society we’ll just keep missing out.

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**Working to influence those who inform us most about statistics...**

**the media**

Whether on TV or radio, in newspapers or on the web, statistics pervade media output...

[read more](#)

**elected representatives**

Elected representatives make decisions on spending billions of pounds of public money...

[read more](#)

**schools and universities**

Statistics is studied by all school students in mathematics and in many other subjects...

[read more](#)

**employers**

Everyday business decisions rely on the collection and interpretation of data...

[read more](#)

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**What others are saying about getstats...**
getstats - Ten years to Statistical Literacy? - this talk covers

1. RSS activities and plans
   - *where the RSSCSE has started work in getstats*

2. A citizen’s charter for statistics
   - *the minimum every citizen should know?*

3. Developing a course in statistical awareness
   - *for undergraduates and employees*

4. Teaching statistics in a more appealing way
   - *using a problem solving approach*

5. Engagement with outside bodies
   - *the BBC and more*
1 RSS Activities and plans

Irreversible step-change
*Re-branding statistics as a discipline*

Economic benefit to UK
*Supplying employers with the talent needed*

Social benefit to society
*Ensuring citizens have skills for modern life*
Getstats Campaign Activity Areas

- Media
- Elected reps
- Education
- Employers
- General Public

Specialist resources

- Journalists
- Elected representatives
- Teachers, lecturers and students
- Employers and employees
- General Public
Phase 1 (2010 – 2012) Objectives for the media

- Build demand for skills
- Support and develop stats skills of journalists
- Overview data exploratory & visualisation techniques
- Support interface between providers and users
Phase 1 (2010 – 2012) Objectives for Elected reps

- Build a dialogue with elected reps & decision makers (MPs) to espouse the role of evidence-informed policy making
- Work with users of official statistics to build trust in good statistics and skills
Phase 1 (2010 – 2012) Objectives for Education

- Promote real data and applications across the curriculum
- Build statistics teaching skills across the curriculum
- Reach out to young people with positive experiences of stats
- Develop projects that reach parents and citizens
Phase 1 (2010 – 2012) Objectives for Employers

- **Build understanding of the role of statistics skills for developing a fully competent work force**
- **Show how to audit statistics skills and where and how to develop them**
- Develop an appreciation of how stats skills can improve productivity, enhance job satisfaction and career progression
Phase 1 (2010 – 2012) Objectives for the public

- Reach citizens (including children) through the media
- Support the interface between providers and users
- Provide news and services via the web
About getstats

Numbers are everywhere. But mostly we don’t really get what they mean, even when they’re key to the important choices we make in our lives.

The getstats campaign is about turning this around – giving everyone the skills and confidence to use numbers well.

Otherwise as individuals and as a society we’ll just keep missing out.

Latest news

- The Joy of Stats YouTube clip has now topped 4m views.
- Visit the getstats Stand: Visualisation and Presentation in Statistics, Open University, 18 May 2011
- Speed Data-ing: the effects of the rapid rise of the data society
- Campaign posters now available for download
- Our survey says… “Half of UK adults not confident what government cuts mean for them”

Features

In this BBC video Hans Rosling shows how animation can help us understand the meaning in data...

Significance magazine explains how statistics has changed our world for better.

What others are saying...

Ronald L. Wasserstein, Executive Director, American Statistical Association

The ASA applauds and congratulates the RSS on the timely launch of getstats on World Statistics Day.

The vision of this campaign is a society we not only want to live in, but one we desperately need - a statistically literate citizenry capable of understanding data and making informed choices based on that understanding.

The getstats campaign is a sound strategy implemented at the right time by a progressive professional society, and we wish it all the best.
Working with journalists to report statistics well can help millions of people to be better informed...

We are expanding our existing activities with journalists across all media to develop their awareness of the benefits of statistics, their confident use and knowledge of good sources of data, and when to seek advice.

Workshops for journalists
The RSS's workshops for journalists help them explain the basic statistical issues in a way that the general public can easily understand.

Coordinating science training
Statistics lies at the heart of science - working with the Science Media Centre, and funded by a government grant, the RSS is hosting the national coordinator for science journalism training.

Recognising excellence
The RSS's awards for statistical excellence in journalism spotlight the best in using and reporting statistics.

The BBC College of Journalism videoed our most recent workshop for journalists. Here, David Spiegelhalter discusses whether or not some health stories are coincidental.
Working with elected representatives at all levels can help make sure services are effective and meet all our needs...

Informing policy making
By responding to consultations and public inquiries the RSS promotes cost-effective, evidence-informed policy making

Working with parliamentarians
The RSS is working closely with the all-party parliamentary group on statistics, supporting politicians in understanding and using statistics

Developing expert advice
The RSS actively develops expert advice and policy on major public issues, such as swine flu, ecosystem change and criminal justice

Get involved...
Tell us what you think
Your views can help make the getstats campaign better

Volunteer
Take part in an existing activity or propose one of your own

Spread the word
Tell others about getstats and how it can help them

Specialist resources

- Journalists
- Elected representatives
- Teachers, lecturers and students
- Employers and employees
- General Public
Role for RSSCSE in campaign

Building confidence so students can learn, value and use statistics in tackling life's issues...

We will work with secondary and further education teachers of all subjects in which statistics is used and taught. We aim to build teachers' confidence and skills in teaching statistics in a way which reflects how the subject is used in the real world so that school leavers have the statistical life skills they need.

Inspiring teaching
The Significance in the Classroom project uses real-world statistical applications to inspire teaching and learning

Engaging students and parents
Our Planet Earth project engages students and their parents in real-world problem solving using their own data

Providing insight
The RSS Schools Lecture provides informative and entertaining insight into the wide applicability of statistics

Role for RSSCSE in campaign

Center for Statistical Education
The aim of the Royal Statistical Society Centre for Statistical Education is 'To promote the improvement of statistical education, training and understanding at all ages'.
Working with employers to develop statistical skills across the workplace building stronger businesses...

We will enable employers in targeted industries and sectors to understand the role of statistical skills across all levels of a high performing workforce and provide employers and employees with pathways to those skills and to their professional recognition.

Identifying needs
The RSS Employers Forum will identify and fill gaps in statistical literacy at all levels across a range of business sectors.

Supporting careers
Supporting employers and employees with an online recruitment portal, professional development courses, and pathways to Chartered Statistician status.

Promoting dialogue
The RSS Statistics User Forum bringing together official statistics users and producers from all sectors to maximise the benefits from data.
The getstats campaign has a vision in which everyone in society is able to understand and use statistics in their own lives.

In this section we will set out information and resources to help the public generally find out more about statistics and explore what they mean for their lives.
2 A citizen’s charter for statistics?

- A charter is the grant of authority or rights

Magna Carter

796 years ago tomorrow!
Citizens’ Statistics Rights?

1. What they should know about

2. What they should be able to identify and critically evaluate

3. What they should be able to do or use
(i) Know about, but not necessarily able to do

1. Risk
2. Inference
3. Probability for quantifying
4. Govt data and info
5. Quality improvement
6. Examples of statisticians’ work
7. Strengths and weaknesses of indicators
8. Large data sets
9. Application areas
10. Technical terms
(ii) Identify or critically evaluate

1. Media accounts of an issue
2. Advertising
3. Use in other subjects
4. Graphical representations
5. Risk assessment
6. Misuses of statistics
7. Nature of sampling
8. Anecdote and design
9. Quality of questions in a questionnaire
(iii) Able to do or use

1. Target populations
2. Representative samples
3. Probability as a measure of uncertainty
4. Randomness
5. Variability
6. Evidence and inference for decision making
7. Reduction of bias in sampling
8. Reduction in bias in measuring
9. Contexts
DRAFT A Statistical Education Charter for Citizens

1 What citizens should know about

- simple applications of probability including relative and absolute risk;
- the statistical process of drawing inferences about populations from well designed experiments or well-chosen samples; that these inferences can be quantified using probabilities and a clear idea of what these probabilities mean;
- the sort of information collected by government and other agencies and how this information is used;
- how statistics is used in industry and commerce, for example in quality improvement processes;
- some current areas in which statisticians are actively working and the sort of problems they are solving; examples can be found in Significance and Chance magazines as well as the more serious press and other journals;
- the use of statistical indicators to measure performance; their strengths and weaknesses;
- how and why businesses use large data sets;
- how statistics is used in different applied areas such as medicine and crime;
- basic technical terms that might be met in everyday reporting such as standard deviation and confidence interval.

These are areas where it would not be feasible for citizens to do the statistics for themselves, but they should be able to discuss the issues on the basis of what they know.

2 What citizens should be able to identify and critically evaluate

This includes basic concepts of how statistical arguments are sometimes used to inform or sometimes mislead, especially through advertising, the media and special interest groups, for example:

- newspaper and popular magazine accounts of an issue in which statistics was used;
- the use of statistics in other (school) academic subjects;
- officially produced tables of data;
- graphs of data;
- risk assessment.

Citizens would be expected to comment on such things as: the nature of the sampling or experimental design; nature of questions on a questionnaire; whether the written description matched with the numerical or graphical presentation; whether the important points are made; whether there were any omissions; any misuses of statistics and so forth.

3 What citizens should be able to do

Activities should be focused on the major ideas of statistics, including using:

- target populations and representative samples;
- different measurement scales;
- probability as a measure of uncertainty;
- randomness and variability;
- inference to make decisions;
- ideas to reduce bias in sampling and measuring.

Real data should be used and it should be drawn from a wide range of contexts.
3 Developing a course in statistical awareness

• Employees and employers needs
  – need to find out

• What are the statistics profiles of employers and employees
  – audit skills and knowledge

• How do we find out?
  – RSSCSE has applied for funding to investigate knowledge, skills and needs of employees and employers

• Decide on the (wide) range of questions to ask....
4. Teaching statistics in a more appealing way - to engage non-specialists

- Michael Stewart – ‘Changing the Way we Teach Statistics’ - article in *The Statistician* (1993 - all levels)
- PPDAC cycle in Wild and Pfannkuch paper (NZ from 1999)
- Use the data handling cycle (UK schools from 1999)
- GAISE recommendations from ASA (USA from 2003 - all levels)
- Qualifications and Curriculum Authority commissioned report (UK – 2005, school)
- Mathematics and Statistics curriculum (NZ – 2008, school)
- Emphasise the use of real, purposeful, motivating data in a problem solving context
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Teaching in a more appealing way

- By demonstration and using a problem solving approach

- *Guidelines for Assessment and Instruction in Statistics Education*
  - emphasise statistical literacy and develop statistical thinking;
  - use real data (and real world applications);
  - stress conceptual understanding rather than mere knowledge of procedures;
  - foster active learning in the learning environment;
  - use technology for developing conceptual understanding and analysing data;
  - use assessments to improve and evaluate citizen learning.
You can build on the first try by continuing here...

First you decide what problem to solve and what data you need.

Then you collect suitable data.

Have you got all the evidence you want?

Teaching Statistics through Problem Solving
Knowledge and Skills Diagram: Statistical Awareness for Citizens

Numbers - Data - Information - Collection - Presentation - Analysis - Discussion - Reporting - Decision Making

Advanced
Planning More complex principles of design of experiments; more complex survey techniques; input for models with uncertainty

Intermed
Planning Sampling for a purpose; scales of measurement; devising suitable questions for statistical investigation; stratified sampling, paired comparison in designing experiments. Deciding what to measure,

Foundation
Planning Simple ideas of data variation; ideas behind sampling; random samples; elementary experimental design, random allocation

Data, Info
Specify, plan

Data production
Survey making and questionnaire design using the Internet; getting useful data from other schools inside and outside the UK; getting data from scientific and observation studies

Collect
Experimental Evidence
Observe world events, Internet; Survey responses

Represent, process
Survey summaries; Questioning media data, info, software; Analyse evidence, summarise

Intermed
Analysis Functional statistics: measures of location, variation for more complicated data sets. Probability models. Connections between correlation, causality and confounding. Fitting regression lines. Use of ICT to draw and analyse data, elementary simulation. Assessment of relative and absolute risk.

Advanced
Analysis Advanced functional statistics: hypothesis testing, comparing measures of location, variation, probability, models with uncertainty. Presenting information from large data sets and in complex tables. Using probability distributions. Use of ICT for simulating and calculating probabilities.

All citizens should have knowledge and skills from doing the iterative cycle (yellow boxes) using material at intermediate (intermed) level.
A simple Cornish Pasty

Could a Cornish pasty help promote statistical literacy through problem solving?
Problem: optimise making Cornish pasties

It’s a real problem
It provides real data in context
Can use pedagogy to teach employees and employers the statistics through solving the pasty production problem
A Cornish Pasty has everything ... use it to teach statistics through problem solving?
More real data – for and about learners
Eleven years of CensusAtSchool

Real Data in context:
10 years of CensusAtSchool data

CensusAtSchool Project
Real Data Real Learning

2011 Online survey

2011 CensusAtSchool Project
Reaction Time Game

2011 CensusAtSchool Project
Random Data Selector

Eight countries’ data: UK; SA; OZ; NZ; Canada; Ireland; Japan; USA
Professional Development for Teachers of Statistics

RSS Certificate in Teaching Statistics in Higher Education

ROYAL STATISTICAL SOCIETY
This is to certify that the
ROYAL STATISTICAL SOCIETY CERTIFICATE
IN TEACHING STATISTICS
IN HIGHER EDUCATION
was awarded to
Neville John Goodall
in
February 2005

Signed on behalf of the Professional Affairs Committee

[Signature]

This Certificate is the property of the
Royal Statistical Society
RSS Certificate in Teaching Statistics (CTS) up to Pre-university Level

ROYAL STATISTICAL SOCIETY

This is to certify that the

ROYAL STATISTICAL SOCIETY
CERTIFICATE
IN TEACHING STATISTICS
UP TO PRE-UNIVERSITY LEVEL

was awarded to

A N Other

in
September 2010

Signed on behalf of the Professional Affairs Committee

__________________________
Chair

This Certificate is the property of the Royal Statistical Society

__________________________
Director of Education and Professional Affairs
Trying to get the (schoolteacher) *Certificate in Teaching Statistics* embedded in university courses

(Eg – University of Lancaster)
5 Engagement with outside bodies

- People who influence the curriculum – government education departments
- People who teach – get them to change their ways?
- Business and Industry
  - Bringing industrial problems into the HE curriculum
  - UK HE Science, Technology, Engineering and Mathematics (STEM) initiative
- *Engaging with journalists*
- *BBC*
  - *Engagement through news and schools*
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David Spiegelhalter great media communicator
A disastrous piece of risk communication?

Posted April 13th, 2011 by david

Yesterday’s announcement that the Fukushima accident was now upgraded to a Level 7 was greeted with some consternation, since this is not only the same level as Chernobyl but as high as the scale can go – there is no Level 8. But is this scale really fit for its purpose?

The International Nuclear and Radiological Event Scale (INES) is intended to be "used for promptly and consistently communicating to the public the safety significance of events associated with sources of radiation". In the guidance manual, Level 7 is technically defined as

"Level 7: An event resulting in an environmental release corresponding to a quantity of radioactivity radiologically equivalent to a release to the atmosphere of more than several tens of thousands of terabecquerels of 131I."

It therefore has a technical definition in terms of radiation release translated to an equivalent mount of radioactive iodine.

But the definition of Level 7 that is communicated to the public is in terms of the impact on people and the environment:

"Major release of radioactive material with widespread health and environmental effects requiring implementation of planned and extended countermeasures"
60% of the time
Kids who spot bullshit, and the adults who get upset about it

June 4th, 2011 by Ben Goldacre in brain, gym, bullying, childishness, schools | 24 Comments »


If you can tear yourself away from Ryan Giggs’ penis for just one moment, I have a different censorship story.

Existential angst about the bigger picture in scientific and medical circles. If you don’t believe me, you can read the rest of this entry.
We should so blatantly do more randomised trials on policy
May 23rd, 2011 by Ben Goldacre in africa, evidence based policy, politics | 19 Comments »


Politicians are ignorant about trials, and they’re weird about evidence, it doesn’t need to be this way. In international development work, resources are tight, and people know that good intentions aren’t enough: in fact, good intentions can sometimes do harm. We need to know what works.

In two new books published this month — “More Than Good Intentions” and “Poor Economics” — four academics describe amazing work testing interventions around the world with proper randomised trials. This is something we’ve bizarrely failed to do at home. Read the rest of this entry »

Asking the wrong question: how crap research gets drugs to market
May 7th, 2011 by Ben Goldacre in bio pharma, numerical context | 25 Comments »

Ben Goldacre, The Guardian, Saturday 7 May 2011

Some of the biggest problems in medicine don’t get written about, because they’re not about eyecatching things like one patient’s valiant struggle: they’re protected from public scrutiny by a wall of tediousness.

Here is one problem that affects millions of people. What if we had rubbish evidence on whether hundreds of common treatments really work, simply because nobody asked the right research question? A paper published this week looks at how much evidence there was for every one of the new drugs approved by the FDA between 2000 and 2010, at the time they were approved. Read the rest of this entry »

I foresee that nobody will do anything about this problem
April 23rd, 2011 by Ben Goldacre in bad science, publication bias | 23 Comments »

Ben Goldacre, The Guardian, Saturday 23 April 2011

Last year a mainstream psychology researcher called Dan Ariely published a competent academic paper, in a well respected journal, showing evidence of precognition, instead of designing new studies to see whether people could consciously tell you about the future, he ran some classic psychology experiments backwards. Read the rest of this entry »
Engagement with the BBC
2011 BBC News School Report Survey

Snapshot of a generation revealed
A BBC survey of schoolchildren has given a unique insight into the daily lives, fears and aspirations of a generation of young people in the UK.
- Survey suggests family cutbacks

MORE STORIES
- School Report Survey Q&A
- Schools analyse survey results
- How the UK census helped inspire School Report’s Survey

RESOURCES FOR TEACHERS
- Top tips on data visualisation
- Introductory Lesson
- Turning statistics into stories

SCHOOL REPORT SURVEY FEATURES

In pictures: School Report Survey
Pupils from Hendon School get creative to showcase the School Report survey.

WATCH/LISTEN
- What are School Reporters most interested in?
- Stretford Grammar investigate the Survey
- How dangerous are computer games?
- Can statistics be fun?

SCHOOL REPORT SURVEY KEY FACTS
- More than 24,000 children from across the UK, all aged 11-16, filled in the 2011 survey
- Topics include home life, technology, exercise and wellbeing
- Schools can report on their own data, as well as looking at the overall figures
- The full results will be released on School Report News Day on 24 March
- Find out more

UK CENSUS NEWS
- Census: A fair reflection of the UK?
- Census awareness push under way
- A tale of two censuses

MORE INFORMATION
- Royal Statistical Society Centre for Statistical Education
- CensusAtSchool

Publicity for RSSCSE on BBC web site
A third of schoolchildren who took part in a UK-wide BBC survey say they do not believe in God, a majority help adults to use the internet and at least one in three is feeling the effects of the economic slowdown.

These are just some of the findings of a BBC School Report survey of more than 24,000 children aged 11 to 16. It gives a unique insight into the daily lives, fears and aspirations of a generation of young people in the UK, as outlined below.

**RELIGION**

When asked "What is your religion?" just under 34% of children surveyed said they did not have one. Compare that with 15% of the adults who were surveyed.

**SCHOOL REPORT NEWS DAY 2011**

- Map of schools taking part in your area
- Sign up for 2011/12
-@student reports
- News Day as it happened
- Paralympian eyes Games legacy
- London school has 2012 Olympics role
- Rihanna triumphs in AV experiment
- Royal wedding scoop revealed
- School Report Shout Out Wall

**IN AUDIO AND VIDEO**

- Schools survey: hopes and fears
- Royal Wedding: 'Can I marry at Abbey?'
- Ex-child soldier tells of reform
- MPs pay tribute to School Report
- The school girl who saved a life
- Grandad revisits dancehall days
The BBC News School Report Survey 2011

Summary

Background

This report presents the key findings from the BBC News School Report Survey 2011. The survey was carried out in conjunction with the Royal Statistical Society Centre for Statistical Education (RSSCSE) at the University of Plymouth.

The BBC News School Report Survey achieved a total sample of 24,052 respondents – all children aged 11-16. The survey aimed to offer pupils attending School Report partner schools the opportunity to give their views and experiences of life, home, technology, faith and other topical issues. Questions were also asked relating to the 2011 Census. Teachers and pupils were consulted in all stages of its development. The survey was available to be completed online between 20th January 2011 and 4th March 2011.

School Report invited the 804 schools signed up to the project in the relevant period to take part. 329 did so. There was no maximum or minimum limit to the number of children at each school that could take part. The average participation rate was 73 but figures ranged from 1 to 7841.

There is no claim that those responding to the School Report Survey are representative of all 11-16 year olds because of self-selecting nature of the schools that take part and the sample of children therein. However there is some evidence that the schools taking part in School Report are broadly representative of schools across the UK and that those taking part in the Survey are representative of that group2.

Research by the RSSCSE on similar scale projects indicates that the children involved were generally representative of children in the whole population.

Key findings of the BBC News School Report Survey

Home life

87% of respondents are born in the UK and Ireland, the second highest area of birth was the rest of Europe at 4%.

More than 1 in 5 (22%) use two or three languages in conversation with family and friends.

Just under 70% live with their dad and just over 10% with their step-dad. 93% live with their mum and 3% with their step-mum. 4% live with a grandparent.

1 There are 3641 state maintained secondary schools in the UK. Independent schools can take part in School Report, and the number participating is proportional to the number of Independent schools in the UK. 19 of the 329 schools participating in the Survey (or 6%) are Independent.

2 The average percentage of pupils known to be eligible for Free School Meals in 279 of the schools who completed the survey is 17.6%. This compares to the English average of 15.4.
2012 is the year of the Olympics, the Paralympics and the Diamond Jubilee. Find out how your school can report for real on events all around the UK, between now and the end of 2012.
SportAtSchool – for the Olympics in London

SportAtSchool

About You
1. Please state the first part of your postcode (e.g. N83 or IP23).
2. Are you?
   - Male
   - Female
3. Please state your age in completed years and the month you were born.
   - Years
   - Month
4. Which hand do you write with?
   - Right
   - Left
   - Either
5. Which one of the following would you prefer to have?
   - Agility (quickness)
   - Endurance (stamina)
   - Speed
   - Skill
   - Strength
6. What is your?
   - Height
   - Length of right foot
   - Vertical reach
   - Open arm span
   - Hand span of the hand you write with
   - cm
7. What is your resting pulse rate?
   - beats per minute
8. How long can you stand on one leg with your eyes closed? The leg you lift off the floor must be bent 90 degrees at the knee.
   - secs
   - sec
   - Portions
10. Were you at school yesterday?
    - Yes
    - No
11. Will you compete in your school’s sports’ day?
    - Yes
    - No
    - My school does not have sports’ day

At School
9 a. What time did you go to bed last night?
   - :

b. Where did you keep your mobile phone last night when you were asleep?
   - Under my pillow
   - In my bedroom
   - In another room
   - Other (please state)

10. What time did you get out of bed this morning?
    - :

11. On a school day do you eat breakfast?
    - Yes
    - No
    - Please state what you had for breakfast:
    - Cereal
    - Cooked breakfast
    - Toast
    - Sweets/chocolate
    - Cake
    - Other (please state)

Sport and Exercise
14 a. How much sport or exercise did you do in school last week or the last week you were at school?
    - hours

b. How much sport or exercise did you do out of school last week (or the last week you were at school)?
    - hours

16. What activities have you taken part in during the last year? (This can be a club activity.)
   a. In school
   b. Out of school
   - Yes
   - No

17. Can you?
   a. Swim 25m?
   b. Ride a bike?
   - Yes
   - No

19. Are you going to an event at the:
   a. 2012 Olympics
   b. 2012 Paralympics
   - Yes
   - No

20. In the last week approximately how much time did you spend, to the nearest hour, playing motion-controlled games? (Wii, Xbox, PS3)
    - hours

21. How many medals do you think these nations will win at London 2012? (Gold, silver and bronze.)

   China
   USA
   Russia
   UK

There is a reaction time game to complete on the SportAtSchool online questionnaire.

SportAtSchool (Parents, guardians and carers)

Your child’s school is taking part in the SportAtSchool project to give learners the opportunity to improve their data handling skills, be part of a national sporting event, become a BBC News School Report School. The answers to the questions below will help to create worksheets and activities from these real data. This questionnaire is anonymous, entirely voluntary and the data cannot be traced back to an individual.

1. Are you?
   - Male
   - Female
2. Do you normally eat breakfast?
   - Yes
   - No

b. What did you have for breakfast this morning?
   - Fruit
   - Cereal
   - Cooked breakfast
   - Toast
   - Sweets/chocolate
   - Cake
   - Other (please state)
   - I did not have breakfast

5. What sporting activities have you taken part in during the last year? (This can be a club activity.)
   - Fruit
   - Cereal
   - Cooked breakfast
   - Toast
   - Sweets/chocolate
   - Cake
   - Other (please state)
   - I did not have breakfast

6. Can you?
   a. Swim 25m?
   b. Ride a bike?
   - Yes
   - No

7. Do you play a sport or take part in a sporting activity with your child/children?
   - Yes
   - No

8. Are you going to an event at the:
   a. 2012 Olympics
   b. 2012 Paralympics
   - Yes
   - No

9. In the last week approximately how much time did you spend, to the nearest hour, playing motion-controlled games? (Wii, Xbox, PS3)
   - hours

There is a reaction time game to complete on the SportAtSchool online questionnaire.

SportAtSchool

10. How long can you stand on one leg with your eyes closed? The leg you lift off the floor must be bent 90 degrees at the knee.
    - secs
    - sec

11. On a school day do you eat breakfast?
    - Yes
    - No
    - Please state what you had for breakfast:
    - Cereal
    - Cooked breakfast
    - Toast
    - Sweets/chocolate
    - Cake
    - Other (please state)

    - Portions

b. Were you at school yesterday?
    - Yes
    - No

13. Will you compete in your school’s sports’ day?
    - Yes
    - No
    - My school does not have sports’ day

14 a. How much sport or exercise did you do in school last week or the last week you were at school?
    - hours

b. How much sport or exercise did you do out of school last week (or the last week you were at school)?
    - hours

15. What activities have you taken part in during the last year? (This can be a club activity.)
   a. In school
   b. Out of school
   - Yes
   - No

16. Have you been involved in competitive sport?
   a. In school
   b. Out of school
   - Yes
   - No

17. Can you?
   a. Swim 25m?
   b. Ride a bike?
   - Yes
   - No

18. Name a famous Olympic.

19. Are you going to an event at the:
   a. 2012 Olympics
   b. 2012 Paralympics
   - Yes
   - No

20. In the last week approximately how much time did you spend, to the nearest hour, playing motion-controlled games? (Wii, Xbox, PS3)
    - hours

There is a reaction time game to complete on the SportAtSchool online questionnaire.
What people know about statistics – after the getstats campaign – people in London, 2020?
“Statistics is the most important science in the whole world:
  – for upon it depends the practical application of every other science and of every art;
  – the one science essential to all political and social administration, all education, all organisation based upon experience, for it only gives the results of our experience.”

Florence Nightingale
RSSCSE contributions to getstats to date

- **Education**
  - Promote real data and applications across the curriculum
  - Build statistics teaching skills across the curriculum
  - Reach out to young people with positive experiences of stats
  - Develop projects that reach parents and citizens

- **Employers**
  - Build understanding of the role of statistics skills for developing a fully competent work force
  - Show how to audit statistics skills and where and how to develop them

- **Public**
  - Reach citizens though the media
Planning

Simple ideas of data variation; ideas behind sampling; random samples; elementary experimental design, random allocation.

Specify, plan

Interpret, discuss

Collect

Represent, process

Data, Info

Survey responses

Observe world events, Internet

Experimental Evidence

Survey questions

Large routine data, official, business

Data, evidence, design, theory, hypotheses, explanations

Survey reports

Discursive reporting

Infer, evaluate, refine hypotheses

Survey summaries

Questioning media data, info, software

Analyse evidence, summarise

Data production

Data loggers for the sciences; data and info from the Internet & media; use of web forms; data scrutiny; data for quality control

Foundation

Critically evaluate - Functional Literacy

Simple inference from charts, diagrams, graphs; Bivariate data; Reading tables; glean info from print and electronic media

Foundation

Analysis

Functional ICT: software for charts, diagrams, graphs. ICT for elementary measures of location & variation for simple data sets. Showing correlation and regression. Uncertainty & elementary probability calculations, including risk

Foundation
Knowledge and Skills Diagram: Statistical Awareness for Citizens

**Numbers-Data-Information-Collection-Presentation-Analysis-Discussion-Reporting-Decision Making**

**Foundation**
- Simple ideas of data variation; ideas behind sampling; random samples; elementary experimental design, random allocation.
- Data, evidence, design, theory, hypotheses, explanations.
- Large routine data, official, business.
- Survey questions.
- Experimental Evidence
- Observe world events, Internet
- Survey responses.
- Survey summaries
- Questioning media data, info, software
- Analyse evidence, summarise.

**Specify, plan**
- Discursive reporting
- Infer, evaluate, refine hypotheses
- Represent, process

**Analysis**
- Functional ICT: software for charts, diagrams, graphs. ICT for elementary measures of location & variation for simple data sets. Showing correlation and regression. Uncertainty & elementary probability, calculations, including risk.
- Advanced functional statistics: hypothesis testing, comparing measures of location, variation, probability, models with uncertainty. Presenting information from large data sets and in complex tables. Using probability distributions. Use of ICT for simulating and calculating probabilities.

**Planning**
- Simple sampling for a purpose; scales of measurement; devising suitable questions for statistical investigations; stratified sampling, paired comparison in designing experiments. Deciding what to measure.
- Critical evaluation - Functional Literacy
  - Evidence based decisions; findings in the context of problems and publicly available statistics; interpreting social data and several related variables; reading quality improvement graphs and charts.

**Advanced**
- More complex principles of design of experiments; more complex survey techniques; input for models with uncertainty.

All citizens should have knowledge and skills from doing the iterative cycle (yellow boxes) using material at intermediate (intermed) level.