

CensusAtSchool

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The Royal Statistical Society (RSS) Centre for Statistical Education based at Nottingham Trent University started the **CensusAtSchool** project in 2000 in conjunction with National Statistics. The project aims to make statistics relevant and assessable for children aged 7 to 16. It has 3 main aims:

- To provide real data for data-handling activities across the National Curriculum;
- To increase awareness of what a national census is, and what it is for;
- To show how Information and Communication Technology (ICT) can be used effectively to enhance learning and teaching in schools.

The original project took place in the autumn of 2000 when over sixty thousand children took part in the first phase, using our Internet site at www.censusatschool.ntu.ac.uk.

Figure 1 **The Census At School Website Portal**



All versions of the **CensusAtSchool** questionnaire are very simple, with questions about the children, their households and their interests. While in the original some of the questions were identical to those on the UK adult census form, many were designed to appeal to the children's own interests and enthusiasms with questions on favourite football teams, pets and school subjects. The word 'census' is used in the sense of regarding the class as the whole population with some children acting as enumerators etc. The focus of the project is to use real data to increase the personal involvement of the children and invite them to

compare themselves with other children both around this country and further afield.

To illustrate this point practically the delegates at the Radical Statistics conference were asked to fill in the short questionnaire, shown in figure 2, asking for a few body measurements, an estimate of Doreen Connor’s age and a few factual questions from the CensusAtSchool questionnaires. Being asked to participate in the data collection enthruses people and motivates further investigation. All too often in schools children are taught data handling and statistical techniques with the sole motivation being that they can perform the various techniques in isolation. Using CensusAtSchool puts the data first and gives back the vital statistical decision making process to the children. How can they show this data? What techniques do they know that they can use? Do they need to learn some new techniques to describe the data and come to correct inferences?

Figure 2 The anonymous questionnaire

22 Feb 2003 Data - anonymous!

1. Please state the first part of your postcode? (e.g. NG3 4R, IP22)

2. Gender

Male Female

3. Please state your age in completed years (not compulsory!)

Years

4. Estimate the age of Doreen Connor in completed years.

Years

5. Complete the following measurements.

HEIGHT in centimetres
.....centimetres.

HAND SPAN in centimetres
.....centimetres.

WRIST circumference in centimetres
.....centimetres.

6. How long, to the nearest minute, do you estimate a half hour, early evening programme on ITV1 actually lasts?

minutes

7. How much money did you bring to today's conference? (not compulsory!)

£

8. How many portions of the following do you regularly eat per day?

Fruit

Vegetable

Sweets

Crisps

9. Rank the following threats to trees and woodland in your area.

Rank 1 to greatest threat - Rank 5 least threat

Climate change

Road building

Pollution

Agricultural development

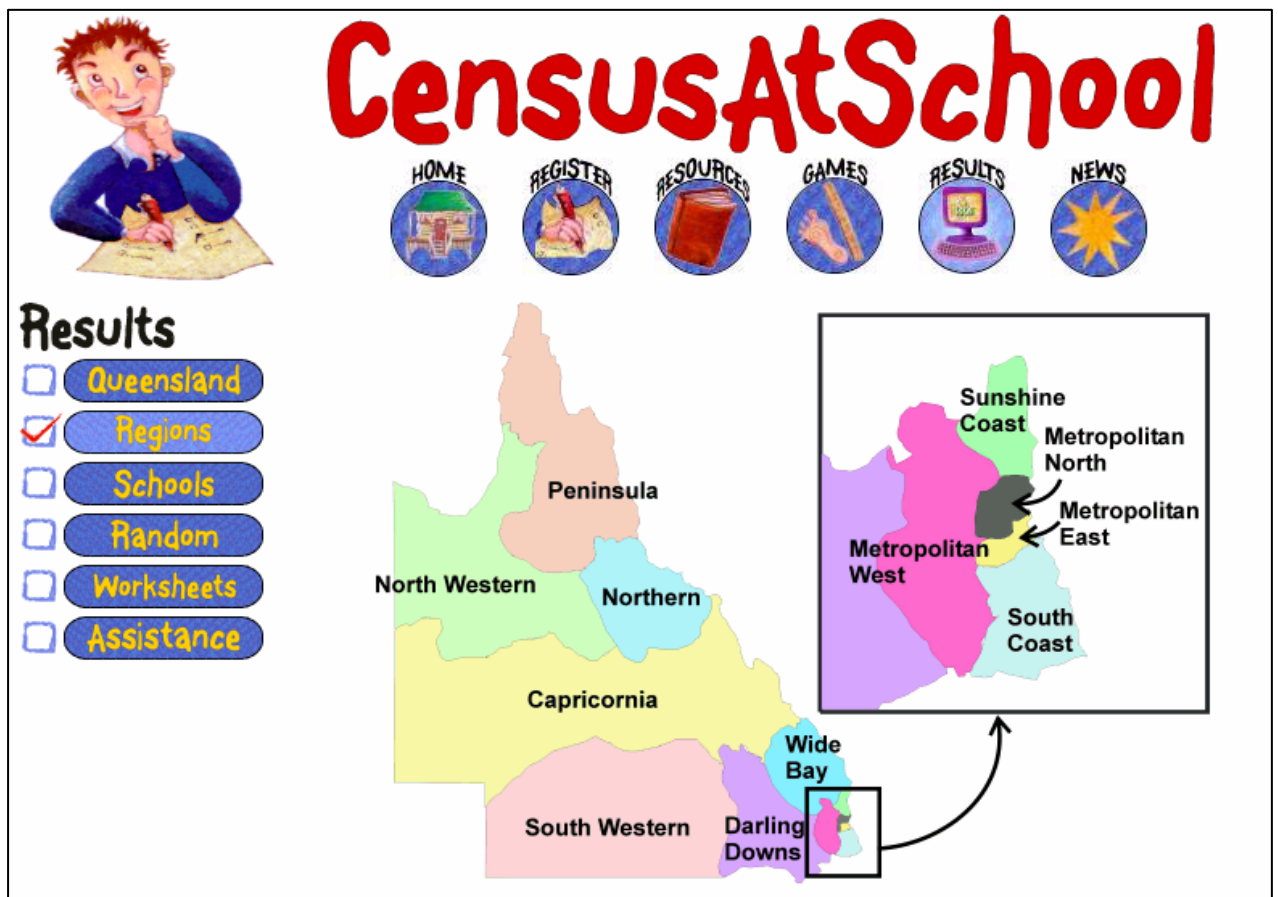
House building

Conversion table

ins	cm	ins	cm
53	134.6	66.5	168.9
53.5	135.9	67	170.2
54	137.2	67.5	171.5
54.5	138.4	68	172.7
66.5	139.7	68.5	174.0
55.5	141.0	69	175.3
56	142.2	69.5	176.5
56.5	143.5	70	177.8
57	144.8	70.5	179.1
57.5	146.1	71	180.3
58	147.3	71.5	181.6
58.5	148.6	72	182.9
59	149.9	72.5	184.2
53	134.6	73	185.4
59.5	151.1	73.5	186.7
60	152.4	74	188.0
60.5	153.7	74.5	189.2
61	154.9	75	190.5
61.5	156.2	75.5	191.8
62	157.5	76	193.0
62.5	158.8	76.5	194.3
63	160.0	77	195.6
63.5	161.3	77.5	196.9
64	162.6	78	198.1
64.5	163.8	78.5	199.4
65	165.1	79	200.7
65.5	166.4	79.5	201.9
66	167.6	80	203.2

The project quickly blossomed to become International with Queensland, Australia (see figure 3) and South Africa in particular adopting the project and developing sister websites to our own, all linked together to enable children to have easy access to data from children in other countries.

Figure 3 **The Queensland Sister Website**

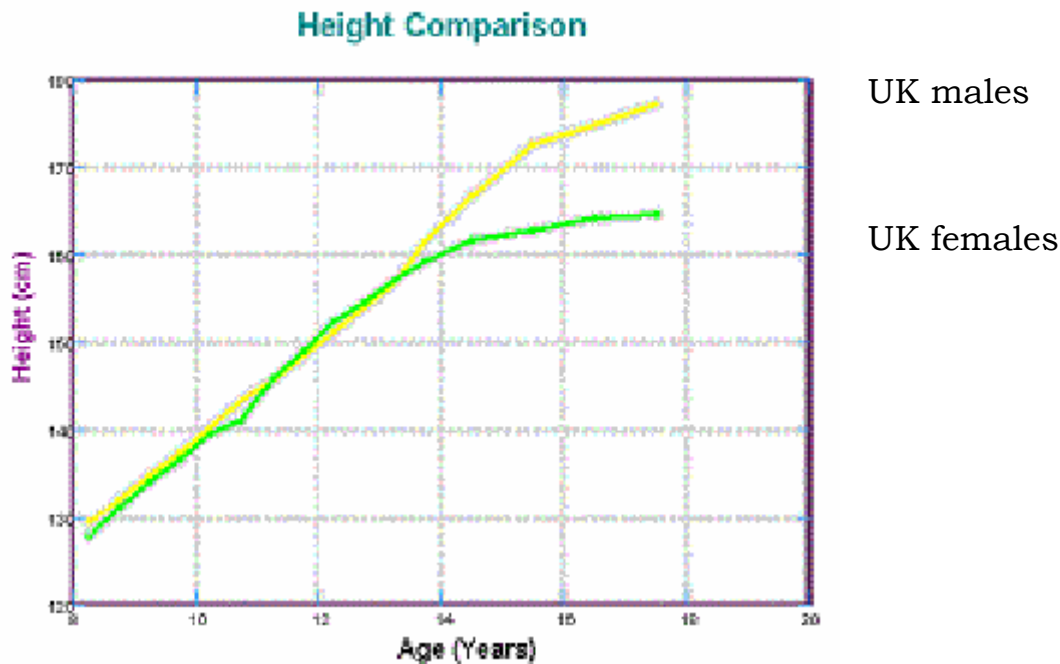


At the current time a number of countries, in conjunction with us, have either reproduced the project or are intending to do so in the near future including South Australia, Italy, Norway, New Zealand and Canada.

In the UK we have followed up the original questionnaire with a phase two version, this has questions linking some of those used on the international versions, and during the academic year 2002/3 phase 3 is running with Phase 4 planned for the year 2003/4. The questionnaires are available as online web forms, with direct links into our databases, so that schools can let their pupils interact directly with the website and then have a file of their own data returned to them to use in their following lessons.

The data itself that has come from this project is fascinating especially when it comes to making comparisons between countries and during the conference delegates were asked to examine some of this data. Look at Figure 4.

Figure 4 **Average heights of 60,000 UK Children.**
Data from phase 1 of *CensusAtSchool*



Are children in South Africa generally taller or shorter than children from the UK? Where would the data from Queensland fit? Why is there such a difference between the genders? Which data might be dodgy? How might this have happened? What can we do to sort it out? Once you start looking at the data we have available on site the questions start coming thick and fast!

We have utilised the data to write many curriculum resources for subjects across the school curriculum and for all ages from 7 to 19. At the conference the delegates were invited to participate in a task entitled 'Dirty Data' where they were given some CensusAtSchool data in a small spreadsheet and asked to try and identify the dirty data in the 30 records on the sheet. The data contains many types of 'dirty data' from the place of birth being recorded as the 'Planet Zog' and 'Going home' cited as the favourite subject to a date of birth of '31/02/90'. Once the dirty data is identified the next task to try to decide what needs to be done to it to clean the data up – do you delete it or as in the case of the height of 14.2cm do you replace it with the value you think it might

actually be, in this case 142cm? This task is designed to provoke arguments and expose a side of data handling that is often not seen in schools. It is however a vital component of pupils learning to cope with real data. At the conference we also looked at a variety of other curriculum resources from across subject areas. With the focus of census the project is ideal to use to cross traditional subject boundaries in schools and also to emphasise the need for governments to collect data from the population.

There is also the facility to draw random samples of raw data from the website using our random data selector and many schools, colleges and universities use this facility to provide real data within their courses. At the conference we showed how easy it was to operate this tool and receive a CSV data file to any e-mail address.

Figure 5 The Gateway to the Random Data Selector



We are continuing to work with the other countries involved in the project, and intend to run a new phase of the questionnaire in the UK each academic year. So, if you have any good ideas for questions that would appeal to young people, that we haven't already used, do get in touch either via the website or directly to the RSS Centre for Statistical Education at Nottingham Trent University 0115 8484476.

Do have a look at the website and if you know anyone who has contacts with schools do tell them about the project. Data handling in schools has never been so exciting as with **CensusAtSchool** !

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