

Topical Applications of Mathematics

Popular Baby Names

PUPIL TEXT

The names parents choose for their babies are constantly changing in popularity but some remain top choices for many years. In this topic we will look at the trends in popularity of names over the past century, up to 2006. We will see if our own data is in line with the 2006 data and will apply standardised techniques to the data for the five years up to 2006 to find recent trends.

Popularity over the years

Data Sheet 1 gives the data for the most popular boys' and girls' names in England and Wales in 1904, 1934, 1964, 1994 and 2006. The data is from the Government's Office for National Statistics: you can find it (and more) at

<http://www.statistics.gov.uk/CCI/SearchRes.asp?term=names>

Activity 1

- (a) *What can you say about this data?*
 - (b) *Look at the 2006 figures. Can you think of any explanations for the popularity of these names?*
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It would be helpful to have more data than just the top five, so *Data Sheets 2* and *3* list the top 20 names for girls and boys in each of the years from 2002 to 2006.

Activity 2

- (a) *Pick out the trends by looking at the position of names over the 5 years.*
 - (b) *How could you illustrate the overall popularity of the names occurring over the 5 years?*
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One way of seeing the trends is to draw a line graph. This has been started on *Data Sheets 4* and *5*. The positions each year for

CHLOE, ELLIE and GRACE

JOSHUA, OLIVER and MATTHEW

are shown.

You can see that CHLOE has been slowly diminishing in popularity after being at No. 1 in 2002, whilst EMILY reached the No.2 spot in 2003 and 2004 but from 2005 appears to be dropping fast. GRACE is the real 'mover', going from No. 19 to No. 2 in the five years of data.

JOSHUA has been consistently popular, whereas OLIVER has increased in popularity overall, with MATTHEW showing a decline.

Activity 3

(a) *On Data Sheet 4, plot the lines for CHARLOTTE, KATIE, and LUCY.*

On Data Sheet 5 plot the lines for BENJAMIN, ETHAN and LEWIS.

Note which names -

A: are steadily increasing in popularity

B: are steadily decreasing in popularity

C: reached a peak and are now decreasing

D: remain approximately constant in popularity.

(b) *Can you explain the data for RUBY?*

Activity 4

Look at the data given on the Office for National Statistics' website for boys' and girls' names in 2007.

Where the names are already on Data Sheets 4 and 5, plot the points for 2007 on your graphs.

Two questions which may spring to mind are

- *does the data you are aware of concerning your family, friends, etc. follow a similar pattern?*
- *does the choice of name matter?*

We will look at the first question now and return to the second question at the end of this topic.

Before we can proceed we will need data from you and your class.

Activity 5

You and members of your class or group, each write down the first names of 20 children born in 2002 – 2006.

Collect all the data together, grouping boys' and girls' names separately. You will need at least 200 items of data in total.

Determine the rank order of popularity, that is, No. 1 the name with the highest frequency, and so on.

So that we can compare our data with the 5-year data on *Data Sheets 2 and 3* we need to find a way of bringing the 5 years of data together. A straightforward method is to find the average rank for each name over the five years.

Example 1

Find the average rank of

- (a) CHLOE
- (b) ELLIE
- (c) GRACE
- (d) RUBY

over the five years, 2002 to 2006.

Solution

$$\begin{aligned}
 \text{(a) CHLOE} \quad \text{average rank} &= \frac{1 + 3 + 5 + 5 + 7}{5} = \frac{21}{5} = 4.2 \\
 \text{(b) ELLIE} \quad \text{average rank} &= \frac{4 + 2 + 2 + 6 + 10}{5} = \frac{24}{5} = 4.8 \\
 \text{(c) GRACE} \quad \text{average rank} &= \frac{19 + 13 + 11 + 7 + 2}{5} = \frac{52}{5} = 10.4 \\
 \text{(d) RUBY} \quad \text{average rank} &= \frac{21 + 21 + 21 + 15 + 4}{5} = \frac{82}{5} = 16.4
 \end{aligned}$$

Any name which was not in the top 20 is given the rank '21'; this applies to RUBY in this instance. In reality most values for those names outside the top 20 will be considerably higher than 21. You can find the actual value by going to the website

http://www.statistics.gov.uk/specials/babiesnames_girls.asp

which gives the top 100 – it might still not be accurate in every case.

Activity 6

Which is the most popular name for (a) GIRLS
(b) BOYS

over the 5 years 2002 to 2006 ?

You will need to make sure that all the average ranks for any possible winners are evaluated, not just the data from Example 1.

Activity 7

Write down your frequency for each of the top 10 names (either GIRLS or BOYS) nationally. Are the two sets of data similar? How could you show whether this is true or not by (a) graphical, (b) numerical means?

Finally we come back to the question of whether the name given to a baby is an important subject. Some people would argue that it is important. The headline in *The Times* newspaper on July 31st 2007 was,

“Choosing the right name could help a child into Oxbridge”,

and in the USA, there are professional ‘nameologists’ who charge for helping parents to decide on a suitable name for their baby!

The name we are given by our parents can have a big impact on us. Throughout our life, from the playground to the office, other people might make assumptions about who we are just from our name.

Extensions

- (a) Is the data for England and Wales similar to that in the USA for popularity of names? USA data can be found at

<http://www.thenewparentsguide.com/most-popular-baby-names.htm>

- (b) Some people give their house a name. What do you think are the most popular house names in the UK? How could you check this?