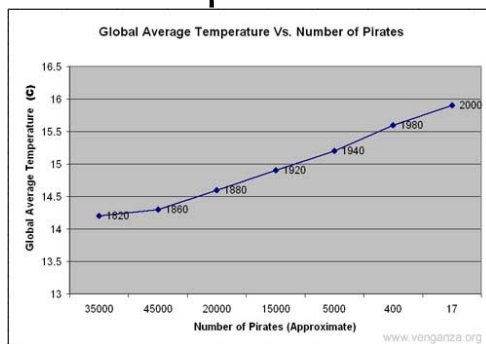


6:4a Lying with Statistics

Statistics is an invaluable tool for human science

- They reveal information about the behaviour and attitudes of large groups
- They help to make clear relationships between factors
- They are useful as empirical support for interpretations



- However there are many pitfalls in statistics and much opportunity to mislead a population

6:4b Lying with Statistics

Larry Liar's Easy Steps™ to Learning how to Lie with Statistics

Methods of Duping

- Intentional deceit (Larry's favorite)
- Selective data-use (Do Not Report On All The Data)
- Faulty assumptions (Do not leave the thinking for the audience. We have to do the thinking for them).
- Creative graphics
- Incompetence



Learn to Sample Correctly

- Choosing which sample to use
- Carefully choose the size of your sample
- "Random" sampling

6:4c Lying with Statistics

The three best ways to lie with sampling are:

- Not only should you ignore any possible biases in your sampling method, you should actively seek to find samples which will give you the answers you want.
- Always claim everything has been done randomly. It is expected of you!
- **Do Not Elaborate!!**

Trickery with Averages

- *Ambiguity is a statistician's best friend—Antonius Stewartius*

Pick the average that suits you best

- There are three measures of central tendency. All three of them can conveniently be called the “average” in statistics
- *Mean (the sum of all values divided by number of values)*
- *Median (the middle value)*
- *Mode (the most common value)*