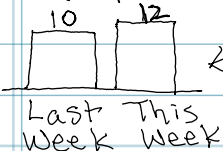


Distortion of results



← Honest

→ Dishonest



People Lie!!

→ Is there a chance to earn big \$ or fame?
 → Self interest Study.

Correlation: when a change in one variable tends to be accompanied by a predictable change in another variable, then they correlate.

→ When children have more cavities, they can run faster.

→ Correlation does not imply cause.

Section 1.2 Where Statistics Fail Critical Thinking

Sampling Error

Error

$$= (\text{estimate}) - (\text{true value})$$

Statistic parameter

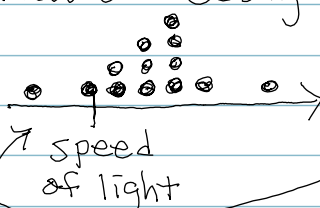
Non Sampling Error

Due to fact that you are using samples.

Absence of population data causes error.

Bias

A tendency for values to be too big/small due to flawed design.



human error.

errors in records

calc. error

Selection Bias

Some population members are more likely to be sampled.
 → Some population members are less accessible! Watch out for:
 → Convenience Samples
 → Self-selecting Samples,

Measurement / Response Bias

due to the tool which is being used to gather data.
 → a bad measuring device
 → a loaded question influences response.
 → people are influenced by the order of responses in multiple choice questions.
 → interviewer gender can influence

Non-response Bias

When members refuse to answer questions they won't be represented.