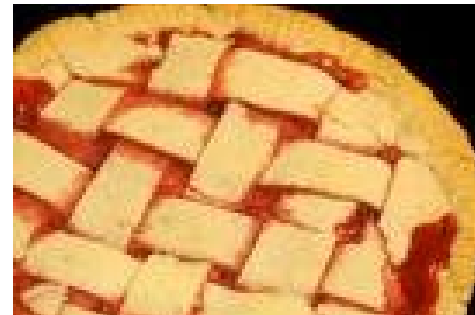
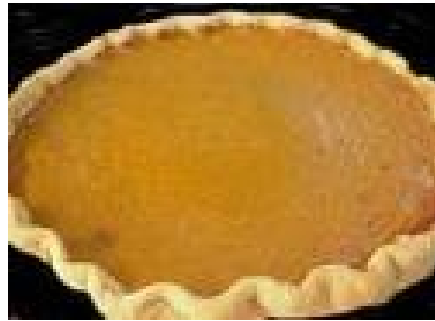


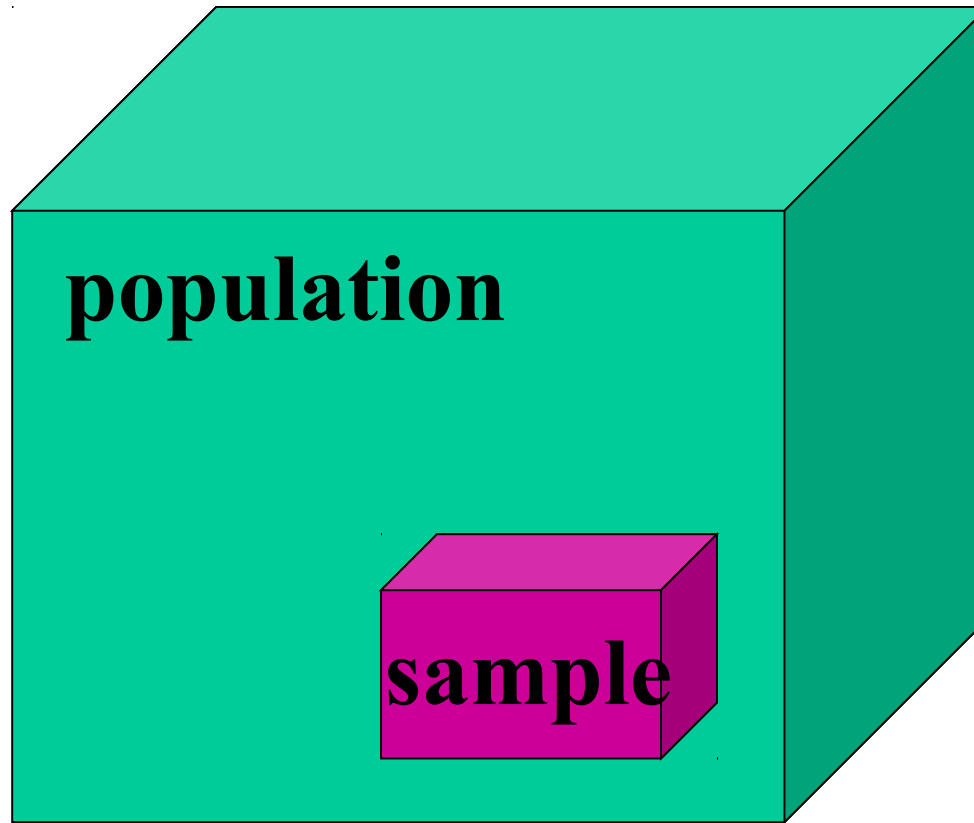
Samples vs populations



Samples vs populations

Population- everything or everyone about which information is sought

Sample- a subset of a population (that is hopefully representative of the population)



Why use a sample instead of a population?

- Logistics
- Cost
- Time

Samples:

Random- each member of population has an equal chance of being part of the sample.

or

Representative- ensuring that certain parameters of your sample match the population.

Replicates:

Technical vs Experimental

Technical replicate- one treatment is divided into multiple samples.

Why?

Replicates:

Technical vs Experimental

Technical replicate- one treatment is divided into multiple samples.

Experimental replicate- different, replicate, treatments are done to different samples.

Why?

Testing blood sugar levels after eating a
Snickers:

Testing blood sugar levels after eating a Snickers:

Divide a participants blood into 3 samples and test blood sugar in each sample.

Technical or Experimental replicate?

Testing blood sugar levels after eating a
Snickers:

Test 3 different people.

Technical or Experimental replicate?

Testing blood sugar levels after eating a Snickers:

Test the same person on 3 different days.

Technical or Experimental replicate?

To see a statistically significant difference between male and female height, what sample size do you need?

This calculator will help you determine the appropriate sample size:

<http://www.stat.ubc.ca/~rollin/stats/ssize/n2.html>

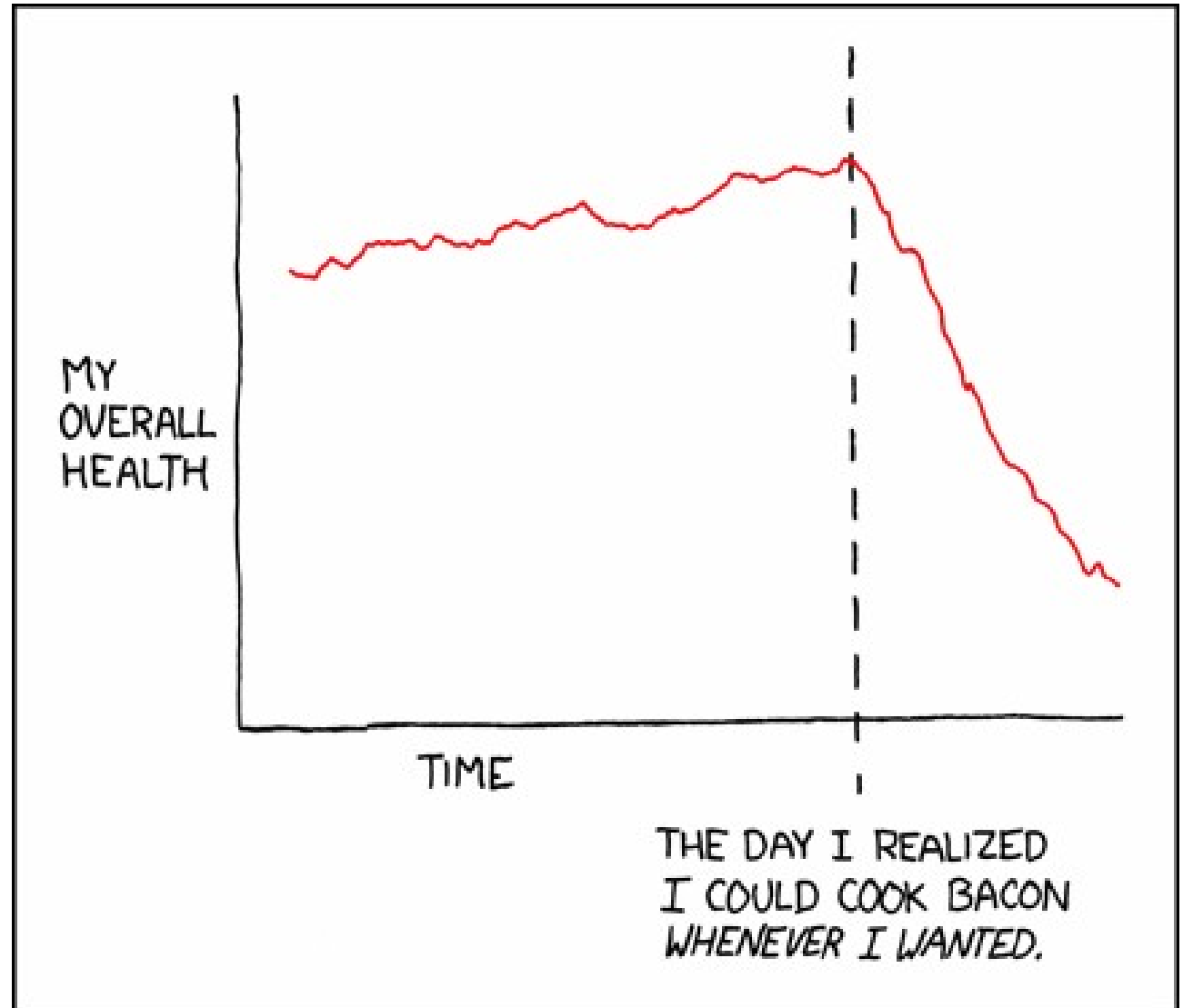
What sample size do you need?

It depends on the error you expect.

(So it is impossible to predict with 100% accuracy before the experiment is carried out.)

Form groups of 6 students (each group needs a computer). Using the heights of your group members, calculate male and female averages and standard deviations, then perform a T-test.

What about relating 2 variables?



What about relating 2 variables?

R^2 gives a measure of fit to a line.

If $R^2 = 1$ the data fits perfectly to a straight line

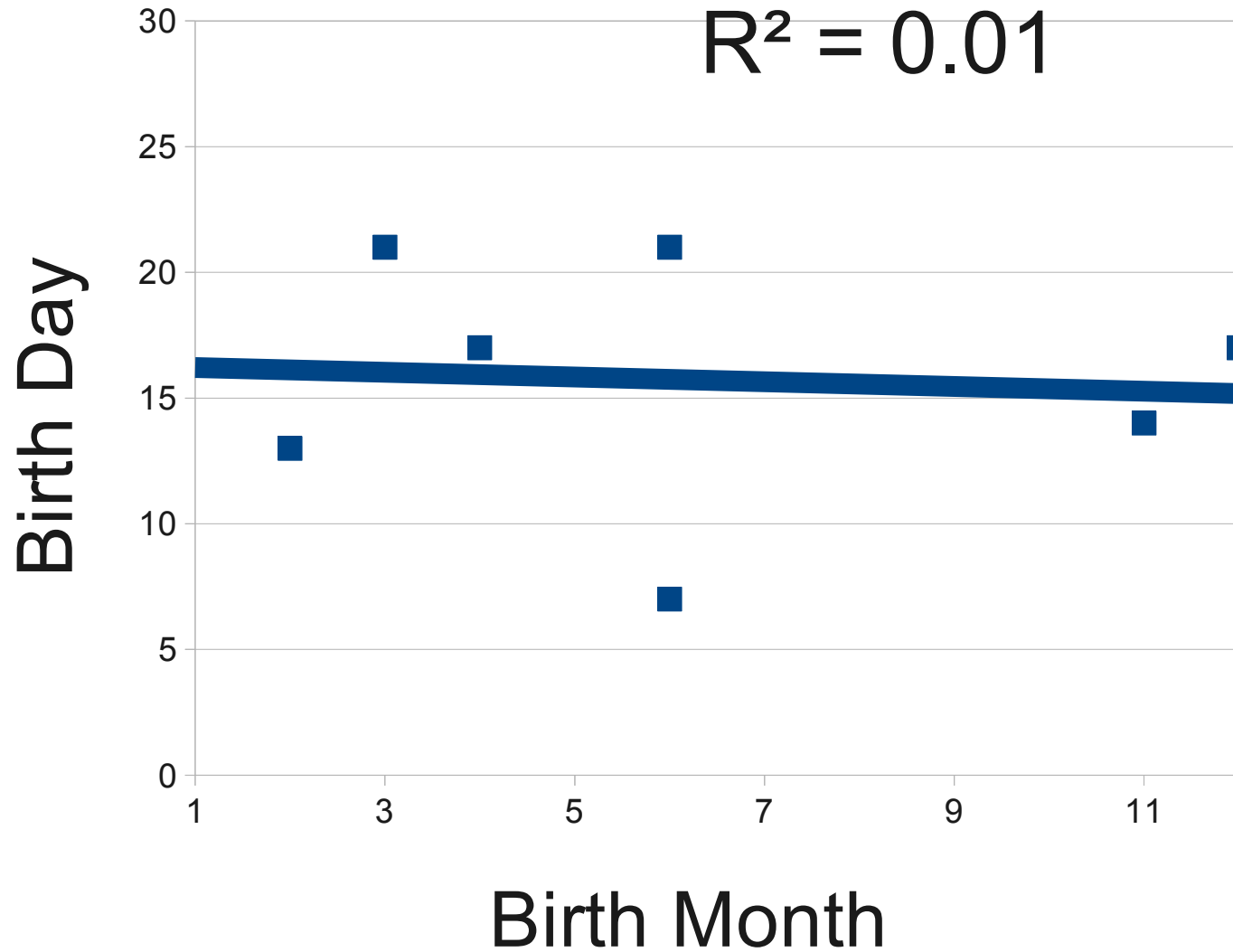
If $R^2 = 0$ there is no correlation between the data

R^2 gives a measure of fit to a line.

birth month vs birth day

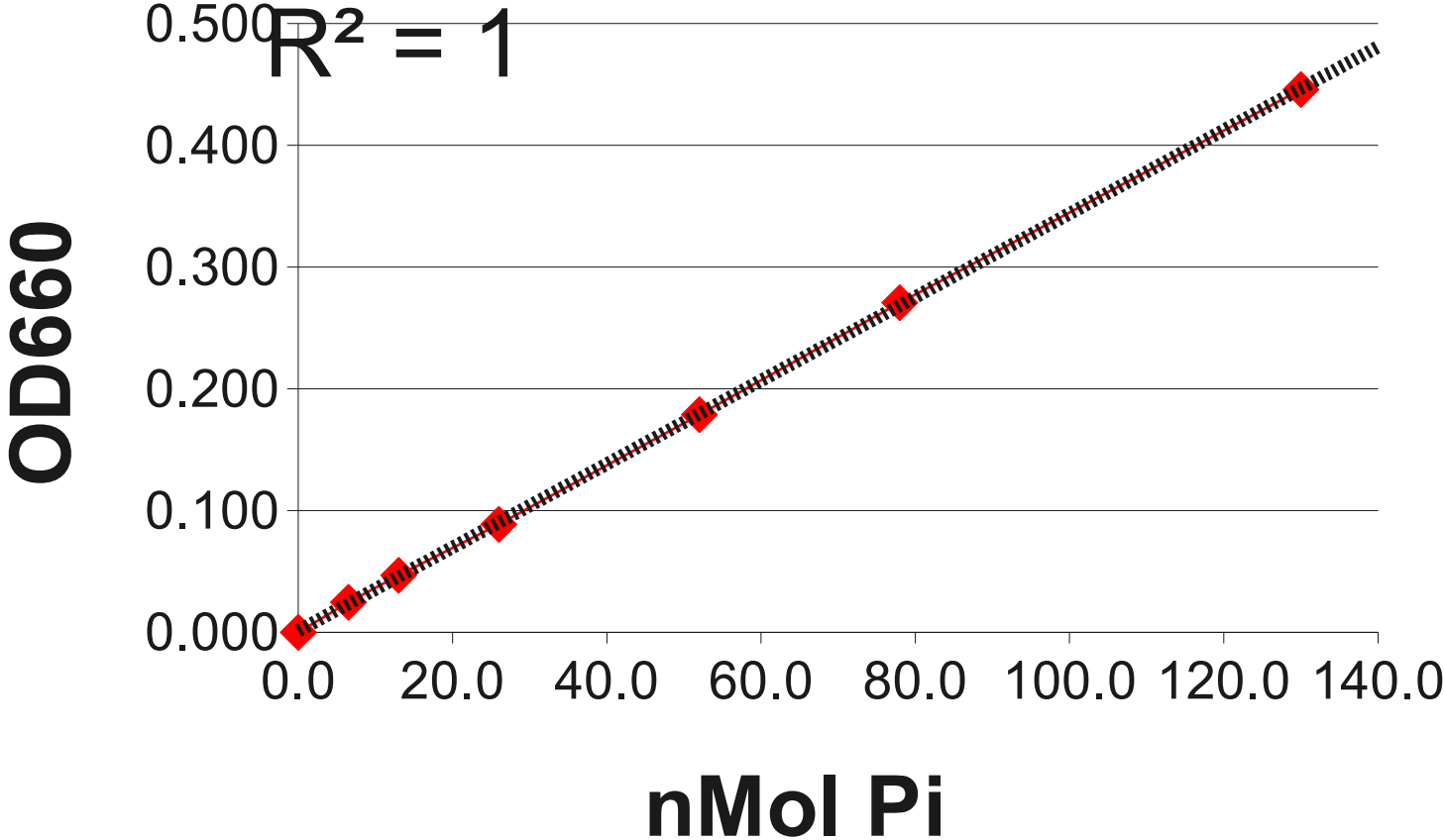
4	17
11	14
6	7
12	17
2	13
6	21
3	21

birth month vs birth day



phosphate quantity vs absorbance

Apyrase Assay Standard Curve 3-7-05



What about relating 2 variables?

- To use R^2 the data must be continually variable...

R^2 gives a measure of fit to a line.

If $R^2 = 1$ the data fits perfectly to a straight line

If $R^2 = 0$ there is no correlation between the data