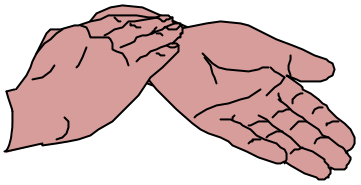
Pulse Rates



You can measure your pulse rate anywhere that a major artery is relatively close to the surface of your skin. The easiest places are on the front of your forearm, just above your wrist on the thumb side, and on the side of your neck, about half way between your chin and ear.

Try now to locate your pulse in one of these places using the tips of your index and middle fingers. You should feel a gentle, regular beat.

Carry out an experiment involving pulse rates.

- Use a stopwatch or watch with a second hand to count how many beats there are in one minute. This is your pulse rate. Keep a record of this.

- Toss a coin.
  If the coin lands on heads, run on the spot for one minute then record your pulse again.
  If the coin lands on heads, sit still for one minute, then record your pulse again.

This experiment was devised and carried out by Professor John Eccleston and Dr Richard Wilson at The University of Queensland. Their results are in the accompanying spreadsheet.

A description of the variables is given in the table below:

Variable	Description
Height	Height in centimetres
Weight	Weight in kilograms
Age	Age in years
Gender	1 male, 2 female
Smokes	Regular smoker?
Alcohol	Regular drinker?
Exercise	Frequency of exercise
Ran	Whether the student ran (1) or sat (2) between pulse rate measurements
Pulse 1	First pulse rate measurement (beats per minute)
Pulse 2	Second pulse rate measurement (beats per minute)
Year	Year of class (93 – 98)

- Add your results to the spreadsheet.

- Study the data carefully to see what you can deduce about pulse rates.
  Write a summary of your findings, including diagrams and calculations to support the points you make.

Teacher Notes

Unit Advanced Level, Using and applying statistics

Notes on the activity

The data in the spreadsheet was collected over a number of years at The University of Queensland. Dr Richard Wilson has kindly given permission for the data to be made available to you in Excel format. The original data and more information about its collection can be found at http://www.statsci.org/data/oz/ms212.html.

The experiment and data were recommended by Alan Heslington of Tyne College for use in data analysis. The data can be used in a variety of ways. For example, students could test whether the pulse rates follow normal distributions or use statistical diagrams and measures such as the mean and standard deviation to compare pulse rates before and after exercise. The final instruction on the worksheet is open-ended to allow students to use a range of ideas, but you could change this to give more detailed instructions.