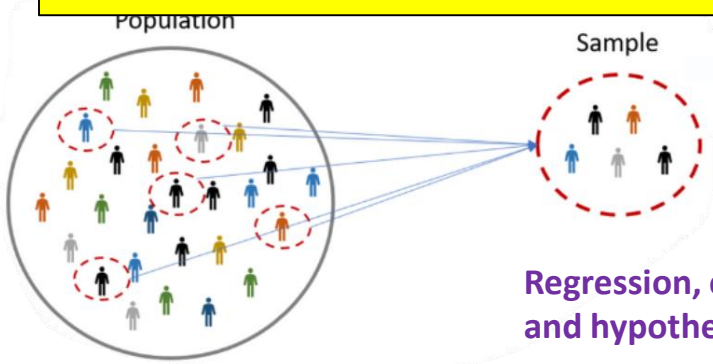


Year 12 Applied Statistics & Mechanics

LEARNING JOURNEY



Regression, correlation and hypothesis testing

Hypothesis testing



Statistical distribution



Probability



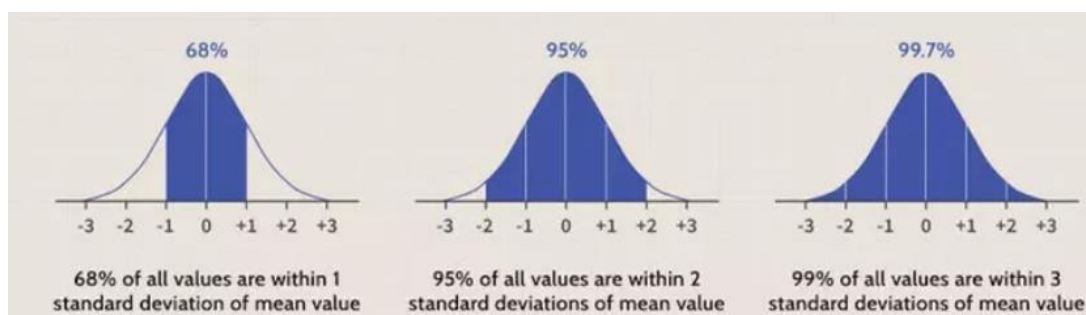
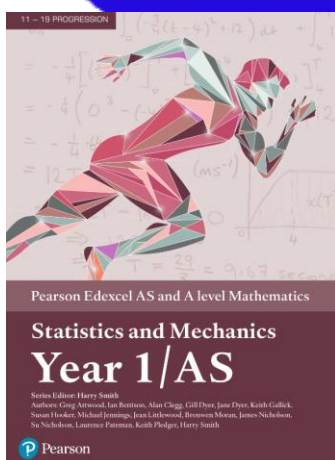
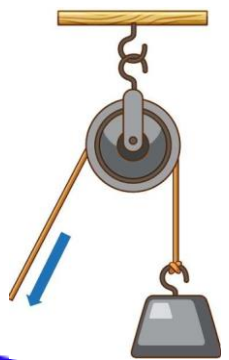
Variable acceleration

Mathematics is the most beautiful and most powerful creation of the human spirit.
Stefan Banach

Correlation

Representation of data

Measures of location & spread



Forces & motion

Data collection

Constant acceleration

Modelling in mechanics



In Year 12 we will explore the following:

- Students will be expected to comment on the advantages and disadvantages associated with a census and a sample.
- Students should be familiar with the terms 'explanatory (independent)' and 'response (dependent)' variables. Use of interpolation and the dangers of extrapolation. Variables other than x and y may be used.
- Students should be able to use the statistic $S_{xx} = \Sigma(x - \bar{x})^2 = \Sigma x^2 - \frac{(\Sigma x)^2}{n}$.
- Students will be expected to use distributions to model a real-world situation and to comment critically on the appropriateness. Students should know and be able to identify the discrete uniform distribution. The notation $X \sim B(n, p)$ may be used. Use of a calculator to find individual or cumulative binomial probabilities.
- Students must** understand and use the language of kinematics: position; displacement; distance travelled; velocity; speed; acceleration.
- Students must understand and use Newton's second law for motion in a straight line (restricted to forces in two perpendicular directions or simple cases of forces given as 2-D vectors).
- Students must understand problems will involve motion in a straight line with constant acceleration in scalar form, where the forces act either parallel or perpendicular to the motion. Resolving forces is not required.

Statistics is the grammar of science.

Karl Pearson