# Experimental Design Project

## Objective:

You must plan, conduct, and analyse an experimental design. It cannot an industrial or

work-related experiment \_ You must physically conduct the experiment \_ Simulated or

fabricated data will not be accepted and will result in a rejected project. It is up to you to

prove that the data is not fabricated. You can do this through photographs.

There must be a:

* Minimum of four factors

Use Minitab to analyse the results. Produce a report of the experiment that contains details of the following:

* The specific objectives of the experiment. Include details of what you set out to evaluate or optimize.
* How you planned and the experiment.
* How you attempted to systematic v \_
* How you analysed the design. Include results, tables, graphs etc. Explain what the results mean.
  + ANOVA
  + Response Graphs
  + Analysis of Residuals
  + Develop the empirical and explain.
  + Predict the optimum response Of the product or process.
  + Perform confirmatory runs.
  + Write a conclusion.
  + Perform a small number of hand calculations that concur with the Minitab results. This could include:
  + Sum Of Squares
  + Residuals
  + Response Graph

The completed report and Minitab file must be uploaded separately to the appropriate Dropbox

Note: The experiment must not be on microwaveable popcorn or a Statapult.

# Experimental Design Project Examples

Design of a Paper Airplane

The perfect soft-boiled egg

Experiments with toys.

Determining the best bubble mixture.

Factors which affect the heart rate of an individual

Optimisation of the throwing distance of a fishing rod.

Setting a target time to boil water.

Time taken to travel to work.

Scone recipe

Home appliances and electricity consumption

Dissolution of Aspirin

Increasing the rate of seed germination

Calories burned in the gym.

Factors affecting Airline pricing.

Performance of a runner

Mushroom growth

Firelighter burn time.

Optimising a toy helicopter

Distance travelled on a bicycle.

Distance travelled by toy car.