Year 1/AS Statistics and Mechanics PLC **Name: _____**

1) DATA COLLECTION

I am able to…..

	☹	😐	☺
Understand and comment on 'population', 'sample' and 'census'			
Understand different types of sampling, and know the advantages and disadvantages of each			
Define and use qualitative, quantitative, discrete, continuous and grouped data			
Understand the large data set, how to use it and what to know about it			

2) MEASURES OF LOCATION AND SPREAD

I am able to…..

	☹	😐	☺
Calculate measures of central tendency such as the mean, median and mode			
Calculate measures of location such as percentiles and deciles			
Calculate measures of spread: range, interquartile and interpercentile range			
Calculate variance and standard deviation			
Understand and use coding			

3) REPRESENTATIONS OF DATA

I am able to…..

	☹	😐	☺
Identify outliers in data sets			
Draw and interpret box plots			
Draw and interpret cumulative frequency diagrams			
Draw and interpret histograms			
Compare two data sets			

4) CORRELATION

I am able to…..

	☹	😐	☺
Draw and interpret scatter diagrams for bivariate data			
Interpret correlation and understand that it does not imply causation			
Interpret the coefficients of a regression line equation for bivariate data			
Understand when you can use a regression line to make predictions			

5) PROBABILITY

I am able to…..

	☹	😐	☺
Calculate probabilities for single events			
Draw and interpret Venn diagrams			
Understand mutually exclusive and independent events			
Determine whether two events are independent			
Use and understand tree diagrams			

6) STATISTICAL DISTRIBUTIONS

I am able to…..

	☹	😐	☺
Understand and use simple discrete probability distributions			
Understand binomial distribution as a model and comment on appropriateness			
Calculate individual probabilities for binomaial distribution			
Calculate cumulative probabilities for binomial distribution			

7) HYPOTHESIS TESTING

I am able to…..

	☹	😐	☺
Understand the language and concept of hypothesis testing			
Understand that a sample is used to make an inference about a population			
Find critical values of binomial distribution using tables			
Carry out a one-tailed test for the proportion of the binomial distribution			
Carry out a two-tailed test for the proportion of the binomial distribution			
Interpret results from one-tailed and two-tailed tests			

8) MODELLING IN MECHANICS

I am able to…..

	☹	😐	☺
Understand how the concept of mathematical models applies to mechanics			
Understand and be able to apply common assumptions used in models			
Know SI units for quantities and derived quantities used in mechanics			
Know the difference between scalar and vector quantities and use vectors			

9) CONSTANT ACCELERATION

I am able to…..

	☹	😐	☺
Understand and interpret displacement-time graphs			
Understand and interpret velocity-time graphs			
Derive the constant acceleration formulae			
Use the constant acceleration formulae to solve problems			
Solve problems involving vertical motion under gravity			

10) FORCES AND MOTION

I am able to…..

	☹	😐	☺
Draw force diagrams and calculate resultant forces			
Understand and use Newton's first law			
Calculate resultant forces by adding vectors			
Understand and use Newton's second law, F = ma			
Apply Newton's second law to vector forces and acceleration			
Understand and use Newton's third law			
Solve problems involving connected particles			

11) VARIABLE ACCELERATION

I am able to…..

	☹	😐	☺
Understand that displacement, velocity and acceleration may be given as functions of time			
Use differentiation to solve kinematics problems			
Use calculus to solve problems involving maxima and minima			
Use integration to solve kinematics problems			
Use calculus to derive constant acceleration formulae			