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| **Year 2 Statistics Units** | **Road Map** | | | | | |
| In this unit you will learn about statistics. The aims are as follows:  **LG1**: Knowledge  **LG2**: Application  **LG3**: Skills | Assessment Grades |  |  | | | |
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| **Themes** | **Learning Goals/Outcomes/Content** | | |  |  |  |
| **Unit 1: Regression, correlation and hypothesis testing.** | be able to change the variable in a regression line; | | |  |  |  |
| be able to estimate values from regression line. | | |  |  |  |
| understand correlation coefficients; | | |  |  |  |
| be able to calculate the PMCC (calculator only); | | |  |  |  |
| be able to interpret a correlation coefficient; | | |  |  |  |
| be able to conduct a hypothesis test for a correlation coefficient. | | |  |  |  |
| **Unit 2 : Probability** | understand and be able to use probability formulae using set notation; | | |  |  |  |
| be able to use tree diagrams, Venn diagrams and two-way tables; | | |  |  |  |
| understand and be able to use the conditional probability formula | | |  |  |  |
| be able to model with probability; | | |  |  |  |
| be able to critique assumptions made and the likely effect of more realistic assumptions. | | |  |  |  |
| **Unit 3 : The normal distribution** | understand the properties of the Normal distribution; | | |  |  |  |
| be able to find probabilities using the Normal distribution; | | |  |  |  |
| know the position of the points of inflection of a Normal distribution. | | |  |  |  |
| be able to find the mean and variance of a binomial distribution; | | |  |  |  |
| understand and be able to apply a continuity correction; | | |  |  |  |
| be able to use the Normal distribution as an approximation to the binomial distribution. | | |  |  |  |
| be able to conduct a statistical hypothesis test for the mean of the Normal distribution; | | |  |  |  |
| be able to interpret the results in context. | | |  |  |  |
| appreciate that the significance level is the probability of incorrectly rejecting the null hypothesis. | | |  |  |  |

**Links:**

LG1: You will develop your understanding of regression, correlation and statistical hypothesis testing. You will develop your understanding of probability, and will know and use the formula for conditional probability. You will learn how to understand and use the normal distribution as a model.

LG2: You will be able to apply a hypothesis test to a binomial distribution and be able to apply your knowledge of logarithms to change the variable in a regression line. You will be able to interpret a correlation coefficient using a given p-value or critical value. You will model with probability including critiquing assumptions made. You will be able to select the appropriate probability distribution for a context, with appropriate reasoning. You will be able to interpret the results of a hypothesis test for the mean of the normal distribution, in context.

LG3: You should be able to use your statistical skill set to work with the large data set by cleaning data, calculating summary statistics from elements of the data set and then comparing and interpreting those statistics. You will model selections of data from the large data set using the diagrams and techniques in this unit. You will interpret and extrapolate apparent trends while evaluating the reliability of doing so. You will use your probability skills to model a wide variety of real-world scenarios using a number of different distributions and be able to comment fluently on appropriateness of distributions. You will use your statistical skill set to work with a wide variety of scenarios from the real world and discuss the suitability of different scenarios for hypothesis testing.