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| **H Unit 14: Collecting data, cumulative frequency, box plots and histograms** | **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** | | |  |  |  |
| 14a Collecting data | Specify the problem and plan: | | |  |  |  |
| Decide what data to collect and what analysis is needed; | | |  |  |  |
| Understand primary and secondary data sources; | | |  |  |  |
| Consider fairness; | | |  |  |  |
| Understand what is meant by a sample and a population; | | |  |  |  |
| Understand how different sample sizes may affect the reliability of conclusions drawn; | | |  |  |  |
| Identify possible sources of bias and plan to minimise it; | | |  |  |  |
| Write questions to eliminate bias, and understand how the timing and location of a survey can ensure a sample is representative (see note); | | |  |  |  |

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| 14b Cumulative frequency, box plots and histograms | Use statistics found in all graphs/charts in this unit to describe a population; |  |  |  |
| Know the appropriate uses of cumulative frequency diagrams; |  |  |  |
| Construct and interpret cumulative frequency tables; |  |  |  |
| Construct and interpret cumulative frequency graphs/diagrams and from the graph: |  |  |  |
| estimate frequency greater/less than a given value; |  |  |  |
| find the median and quartile values and interquartile range; |  |  |  |
| Compare the mean and range of two distributions, or median and interquartile range, as appropriate; |  |  |  |
| Interpret box plots to find median, quartiles, range and interquartile range and draw conclusions; |  |  |  |
| Produce box plots from raw data and when given quartiles, median and identify any outliers; |  |  |  |
| Know the appropriate uses of histograms; |  |  |  |
| Construct and interpret histograms from class intervals with unequal width; |  |  |  |
| Use and understand frequency density; |  |  |  |
| From histograms: |  |  |  |
| complete a grouped frequency table; |  |  |  |
| understand and define frequency density; |  |  |  |
| Estimate the mean from a histogram; |  |  |  |
| Estimate the median from a histogram with unequal class widths or any other information from a histogram, such as the number of people in a given interval. |  |  |  |
| Use statistics found in all graphs/charts in this unit to describe a population; |  |  |  |

**Links:**

LG1: You will know how to collect data and display it in a variety of ways. You will understand bias and how to reduce it.

LG2: You will apply your knowledge of data analysis to make comparisons between different sets of data.

LG3: You will solve problems that require you to collect, analyse and draw conclusions about data, in context.