Topic 2—Descriptive statistics 12 hours

The aim of this topic is to develop techniques to describe and interpret sets of data, in preparation for further statistical applications.

	Content	Further guidance	Links
2.1	Classification of data as discrete or continuous.	Students should understand the concept of population and of representative and random sampling. Sampling will not be examined but can be used in internal assessment.	**Appl:** Psychology 3 (research methodology). **Appl:** Biology 1 (statistical analysis). **TOK:** Validity of data and introduction of bias.
2.2	Simple discrete data: frequency tables.		
2.3	Grouped discrete or continuous data: frequency tables; mid-interval values; upper and lower boundaries. Frequency histograms.	In examinations, frequency histograms will have equal class intervals.	**Appl:** Geography (geographical analyses).
2.4	Cumulative frequency tables for grouped discrete data and for grouped continuous data; cumulative frequency curves, median and quartiles. Box-and-whisker diagram. **Not required:** treatment of outliers.	Use of GDC to produce histograms and box-and-whisker diagrams.	
2.5	Measures of central tendency. For simple discrete data: mean; median; mode. For grouped discrete and continuous data: estimate of a mean; modal class.	Students should use mid-interval values to estimate the mean of grouped data. In examinations, questions using $\sum$ notation will not be set.	**Aim 8:** The ethical implications of using statistics to mislead.

	Content	Further guidance	Links
2.6	Measures of dispersion: range, interquartile range, standard deviation.	Students should use mid-interval values to estimate the standard deviation of grouped data. In examinations: • students are expected to use a GDC to calculate standard deviations • the data set will be treated as the population. Students should be aware that the IB notation may differ from the notation on their GDC. Use of computer spreadsheet software is encouraged in the treatment of this topic.	**Int:** The benefits of sharing and analysing data from different countries. **TOK:** Is standard deviation a mathematical discovery or a creation of the human mind?