The Sutton Academy

Knowledge Rich Curriculum Plan

Course/Unit

Lesson/Learning Sequence	Intended Knowledge: *Students will know that…*	Tiered Vocabulary	Prior Knowledge: *In order to know this students, need to already know that…*	Assessment
LO: To learn how to find measures of central tendency.	• *Students will know that if a single value describes the centre of the data, it is called a measure of central tendency.* • *Students will know that the mean can be calculated using the formula* $\bar{x} = \frac{\Sigma x}{n}$. • *Students will know that for data in a given frequency table, the mean can be calculated using the formula* $\bar{x} = \frac{\Sigma xf}{\Sigma f}$. • *Students will know the best measure to use in a particular solution.* • *Students will know how to find different measures of central tendencies.*		Students will need to know how to work out the mean, median and mode of a set of ungrouped data and from ungrouped frequency tables.	
LO: To learn how to find measures of location.	• *Students will know that the measure of location is a single value that describes a position in a data set.* • *You can calculate measures of spread such as quartiles and percentiles.* • *Students will know that for discrete data, to find the lower quartile divide n by 4. If this is a while number, the lower quartile is between this data point and the one above. If it is not a whole number, round up and pick this data point.* • *Students will know that for discrete data, to find the upper quartile find ¾ of n If this is a while number, the lower quartile is between this data point and the one above. If it is not a whole number, round up and pick this data point.* • *Students will know that in a grouped frequency table you can use a technique called interpolation. To estimate the median, quartiles and percentiles.* • *Students will know that when using interpolation, you assume that the data values are evenly distributed.* • *Students will know that to interpolate we use proportion.*		Students will need to know what the lower quartile, median and upper quartile are.	
LO: To learn how to find measures of spread.	• *Students will need to know that the range is the difference between the largest and smallest value in the in the data set.* • *Students will know the interquartile range (IQR) is the difference between the upper quartile and lower quartile. Q3- Q1* • *The interpercentile range Is the difference between the values for two given percentiles.* • *Students will know how to compare two sets of data using IQR or percentile range.*		Students need to know how to find the IQR.	
LO: to learn how to find variance and standard deviation.	• *Students will know that another measure of spread is the variance which use the fact that each data deviates from the mean x-x(bar).* • *Students will know that the formula for the variance is* $\text{Variance} = \frac{\Sigma(x-\bar{x})^2}{n} = \frac{\Sigma x^2}{n} - \left(\frac{\Sigma x}{n}\right)^2 = \frac{S_{xx}}{n}$ $\text{where } S_{xx} = \Sigma(x-\bar{x})^2 = \Sigma x^2 - \frac{(\Sigma x)^2}{n}$ • *Students will know that the standard deviation is the square root of the variance.* • *Students will know that the standard deviation is denoted by the letter σ and variance* σ^2		Students will know how to rearrange formula.	

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	• *Students will know that the formula for standard deviation is given by* $\sigma = \sqrt{\frac{\Sigma(x-\bar{x})^2}{n}} = \sqrt{\frac{\Sigma x^2}{n} - \left(\frac{\Sigma x}{n}\right)^2} = \sqrt{\frac{S_{xx}}{n}}$ • *Students will know that the formula for a grouped frequency table is given by* • $\sigma^2 = \frac{\Sigma f(x-\bar{x})^2}{\Sigma f} = \frac{\Sigma f x^2}{\Sigma f} - \left(\frac{\Sigma f x}{\Sigma f}\right)^2$ • $\sigma = \sqrt{\frac{\Sigma f(x-\bar{x})^2}{\Sigma f}} = \sqrt{\frac{\Sigma f x^2}{\Sigma f} - \left(\frac{\Sigma f x}{\Sigma f}\right)^2}$ **where f is the frequency for each group and Σf is the total frequency.** • *Students will know how to find the variance and standard deviation using a calculator.*			
LO: To learn how to code data.	• *Students will know that coding is a way of simplifying statistical calculations.* • *Students will know that if data is coded using the formula* $y = \frac{x-a}{b}$*, the mean of the coded data is given* $\bar{y} = \frac{\bar{x}-a}{b}$ *and the standard deviation of the coded data is given by* $\sigma_y = \frac{\sigma_x}{b}$ • *Students will know how to find the mean and standard deviation of the orginal data, given the coded set.*		Students will need to know how to find the mean, standard deviation and variance.	