The Sutton Academy

Knowledge Rich Curriculum Plan

Year 7 Support – Data and Statistics 1

Lesson objective	Intended Knowledge:	Tiered Vocabulary	Prior Knowledge:	Steps to Success	Feedback
To learn how to read and represent time.	• Students will know how to read time on a digital clock. • Students will know how to represent time on a digital clock. • Students will know how to read time on an analogue clock. • Students will know how to represent time on an analogue clock. • Students will know that there are 60 seconds in a minute, 60 minutes in an hour and 24 hours in a day. • Students will know how to convert between the 12 hour and 24-hour clock. **Opportunity for challenge:** • Students will know how to carry out simple conversions between minutes and hours with and without a calculator.	**Analogue clock –** a clock or watch that has moving hands and (usually) hours marked from 1 to 12 to show you the time	• Students need to know that there are 365 days in a standard year and 366 days in a leap year. • Students need to know that there are 7 days in a week. • Students need to know how many days are in each month. • Students need to know that there are 12 months in a year.	**How do you convert minutes to hours without a calculator?** **Step 1** – Express the number of minutes as a fraction over 60. The reason we use 60 minutes is due to the fact that 60 minutes are in 1 hour. **Step 2** – Simplify the fraction, we do this by dividing the denominator and numerator by the Highest Common Factor **Step 3** – Convert the fraction to a decimal; this can be done by dividing the numerator by the denominator or converting the fraction over 100 and then dividing the numerator by the denominator If you are given a calculator convert the hours to minutes, add them and divide by 60. For example if it is 1 hour 40 minutes we know 1 hour is 60 minutes. So, 60 + 40 = 100 Then calculate 100/60 to convert it to a decimal answer.	
To learn how to use conversion graphs.	• Students will know how to use conversion graphs to do simple conversions with currency. • Students will know how to use conversion graphs to do simple conversions with metric and imperial units. **Opportunity for challenge:** • Students will know how to use conversion graphs to carry out conversions that involve scaling up.		• Students need to know how to convert between metric units.		
To learn about different types of data.	• Students will know how to identify and categorise data as qualitative and quantitative. • Students will know how to identify and categorise data as discrete and continuous. **Opportunity for challenge:** • Students will know that some sources of data may be biased and how bias occurs.	**Sample** – a small quantity that represents the whole population. **Continuous data** – data that can take any value in a given range (e.g., height, time, weight, temperature and length). **Discrete data –** data that can only take a certain value (e.g., shoe size, number of people, number of cars). **Qualitative Data –** non-numerical data. **Quantitative Data –** numerical data **Bias** – unfair prejudice for or against one person or group.			

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To learn how to find the mode and median from a list of data values.	• Students will know how to find the mode from a set of data values. • Students will know how to find the median from an odd amount of data values. **Opportunity for challenge:** • Students will know that there can be more than one mode. • Students will know that there can be no mode. • Students will know how to find the median from an even amount of data values.	Mode – the value that occurs most often in the data. Median – the middle piece of data when it is ordered from smallest to largest.	• Students need to know how to order numbers.	Steps to Success - Averages Calculating the median Step 1: Arrange all of the data in order from smallest to largest Step 2: Cross the data out from either end to find the middle piece of data – this is the **median** Finding the mode **Identify** the one that appears the most – this is the **mode**. If there is more than one then write down both.	
To learn how to find the mean and range from a list of data values.	• Students will know how to find the range from a set of data values. • Students will know that to find the mean of a data set, they must find the sum the numbers in the set and then divide that total by the number of numbers in the set. **Note: If students finish please use the opportunity for them to practise a mixture of the different averages and range.**	Mean – a mathematical average calculated by adding up all of the data and dividing it by the number of pieces of data. Range – the difference between the largest and smallest values. This isn't actually an average, but it tells us how spread out the data is.	• Students need to know how to add, subtract and divide integers.	Steps to Success - Averages Calculating the mean Step 1: Add all of the data together Step 2: Divide the answer by the number of pieces of data that there are Calculating the range Step 1: Identify the smallest and largest data in your data set Step 2: Subtract the smallest data from the largest data to determine the **range**	
To learn how to collect data using a tally chart.	• Students will know how to construct and complete a tally chart for discrete data. • Students will know how to construct and complete a frequency table for discrete data. • Students will know how to calculate the total frequency from a frequency table. • Students will know how to read off frequency values from a frequency table. • Students will know how to plan their own investigation and collect the data in a tally chart for discrete data. **Opportunity for challenge:** • Students will know how to construct and complete a frequency table for continuous data.	Tally Chart – a simple way of recording and counting frequencies. Each occurrence is shown by a tally mark and every fifth tally is drawn diagonally to make a "gate" of five	• Students need to identify different types of discrete data. • Students need to identify different types of qualitative data.		
To learn how to draw bar charts.	• Students will know that bar charts are used to represent data to make it easy to read and compare. • Students will know that we can only compare bars within the same scale. • Students will know how to draw, label and scale axes. • Students will know how to draw bar charts for discrete data. • Students will know how to construct a bar chart from information given in a tally chart. **Opportunities for challenge:**	Bar Chart – a diagram in which the numerical values of variables are represented by the height or length of lines or rectangles of equal width	• Students need to know how to complete and interpret a tally chart.	Steps to success - Bar charts When drawing bar charts there are a certain set of rules we need to follow, a bar chart must have: • An appropriate title • Frequency on vertical axes • Labels on axes • Right scales • Space between bars • Bars with equal widths Often exam questions may ask you to identify errors in bar charts, so it is important to remember these rules.	

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	• Students will know how to draw bar charts for continuous data.				
To learn how to interpret bar charts.	• Students will know how to read frequency values from a bar chart. • Students will know how to recognise simple patterns, characteristics and relationships in bar charts. • Students will know how to calculate total population from a bar chart or table. • Students will know how to find the greatest and least values from a bar chart. **Opportunity for challenge:** • Students will know how to compare data within a bar chart. • Students will know how to work out the mode from a bar chart.		• Students need to know how to draw a bar chart.		
Mini-Assessment 12					