



The Sutton Academy

Knowledge Rich Curriculum Plan

Year 7 Core – Data and Statistics 1

Lesson objective	Intended Knowledge:	Tiered Vocabulary	Prior Knowledge:	Steps to Success	Feedback
To learn how to convert time.	<ul style="list-style-type: none"> 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 that there are 7 days in a week. Students will know how many days are in each month. Students will know that there are 12 months in a year, Students will know that there are 365 days in a standard year and 366 days in a leap year. Students will know how to convert between the 12 hour and 24-hour clock. Students will know how to carry out simple conversions between minutes and hours without a calculator. Students will know how to carry out conversions between minutes and hours with a calculator. <p>Opportunity for challenge:</p> <ul style="list-style-type: none"> Students will know how to carry out more complex conversions between minutes and hours 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	<ul style="list-style-type: none"> Students will know how to read and represent time on a digital clock. Students will know how to read and represent time on an analogue clock. 	<p>How do you convert minutes to hours without a calculator?</p> <p>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.</p> <p>Step 2 – Simplify the fraction, we do this by dividing the denominator and numerator by the Highest Common Factor</p> <p>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</p> <p>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.</p>	
To learn how to interpret real-life graphs.	<ul style="list-style-type: none"> 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. Students will know how to use conversion graphs to carry out conversions that involve scaling up. <p>Opportunity for challenge:</p> <ul style="list-style-type: none"> Students will know how to use linear graphs to in order to explore the relationships between costs and variables. Students will know how to use linear graphs involving money to state a fixed cost. 		<ul style="list-style-type: none"> Students need to know how to convert between metric units. 		
To learn how to interpret a distance-time graph.	<ul style="list-style-type: none"> Students will know how to make simple interpretations from a distance-time graph. Students will know how to find distances and times from a distance-time graph. Students will know how to complete a distance-time graph from a worded scenario. <p>Opportunity for challenge:</p> <ul style="list-style-type: none"> Students will know how to draw a complete distance-time graph from a worded scenario. 		<ul style="list-style-type: none"> Students need to know how to find the difference between two times. 		
To learn about different types of data.	<ul style="list-style-type: none"> 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. 	<p>Sample – a small quantity that represents the whole population.</p> <p>Continuous data – data that can take any value in a given</p>			

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	<ul style="list-style-type: none"> Students will know that some sources of data may be biased and how bias occurs. 	<p>range (e.g., height, time, weight, temperature and length).</p> <p>Discrete data – data that can only take a certain value (e.g., shoe size, number of people, number of cars).</p> <p>Qualitative Data – non-numerical data.</p> <p>Quantitative Data – numerical data</p> <p>Bias – unfair prejudice for or against one person or group.</p>			
To learn how to find the mode and median from a list of data values.	<ul style="list-style-type: none"> Students will know how to find the mode from a set of data values. 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 odd amount of data values. Students will know how to find the median from an even amount of data values. 	<p>Mode – the value that occurs most often in the data.</p> <p>Median – the middle piece of data when it is ordered from smallest to largest.</p>	<ul style="list-style-type: none"> Students need to know how to order numbers. 	<p>Steps to Success - Averages</p> <p>Calculating the median</p> <p>Step 1: Arrange all of the data in order from smallest to largest</p> <p>Step 2: Cross the data out from either end to find the middle piece of data – this is the median</p> <p>Finding the mode</p> <p>Identify the one that appears the most – this is the mode. If there is more than one then write down both.</p>	
To learn how to find the mean and range from a list of data values.	<ul style="list-style-type: none"> 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. <p>Opportunity for challenge:</p> <ul style="list-style-type: none"> Students will know how to make basic comparisons between averages or range. <p>Note: If students finish please use the opportunity for them to practise a mixture of the different averages and range.</p>	<p>Mean – a mathematical average calculated by adding up all of the data and dividing it by the number of pieces of data.</p> <p>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.</p>	<ul style="list-style-type: none"> Students need to know how to add, subtract and divide integers. 	<p>Steps to Success - Averages</p> <p>Calculating the mean</p> <p>Step 1: Add all of the data together</p> <p>Step 2: Divide the answer by the number of pieces of data that there are</p> <p>Calculating the range</p> <p>Step 1: Identify the smallest and largest data in your data set</p> <p>Step 2: Subtract the smallest data from the largest data to determine the range</p>	
To learn how to draw bar charts.	<ul style="list-style-type: none"> Students will know how to 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 that a bar chart is a diagram in which the numerical values of variables are represented by the height of bars of equal width. 	<p>Tally Chart – a simple way of recording and counting frequencies by making tally marks. Every fifth tally is drawn diagonally to make a "gate" of five.</p> <p>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</p>	<ul style="list-style-type: none"> Students need to know how to complete and interpret a tally chart. 	<p>Steps to success - Bar charts</p> <p>When drawing bar charts there are a certain set of rules we need to follow, a bar chart must have:</p> <ul style="list-style-type: none"> An appropriate title Frequency on vertical axes Labels on axes Right scales Space between bars Bars with equal widths <p>Often exam questions may ask you to identify errors in bar charts, so it is important to remember these rules.</p>	

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	<ul style="list-style-type: none"> 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. Students will know how to plan their own investigation involving collecting data in a tally chart and then representing the data in a bar chart. <p>Opportunities for challenge:</p> <ul style="list-style-type: none"> Students will know how to use a tally chart to draw a bar charts which involves continuous data. 				
To learn how to interpret bar charts.	<ul style="list-style-type: none"> 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. Students will know how to compare data within a bar chart. <p>Opportunity for challenge:</p> <ul style="list-style-type: none"> Students will know how to compare two different bar charts. 		<ul style="list-style-type: none"> Students need to know how to draw a bar chart. 		
Mini-Assessment 12					