The Sutton Academy

Knowledge Rich Curriculum Plan

Year 12 – stats- Data collection

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 collect data.	• *Students will know that a population is the whole set of items that are of interest.* • *Students will know that a census observes every member of the population.* • *Students will know that a sample is a selection of observations taken from a subset of the population which is used to find out the information about the population of a whole/.* • *Students will know that individual units of a population are known as sampling units.*		Students will need to know how to carry out a stratified sample.	

<table>
<tr><th>Lesson/Learning Sequence</th><th>Intended Knowledge:
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Students will know that often sampling units of a population are individually named or numbered to form a list called a sampling frame.
Students will know that a random sample of size n is one where every sample of size n has an equal chance of being selected.
Students will know that in systematic sampling, the required elements are chosen at regular intervals from a ordered list.
Students will know that in stratified sampling, the population is divided into mutally exclusive strata and a random sample is taken from each.
Students will know the advantages and disadvantages of different sampling methods.

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<tr><td>LO: To learn how to learn about non-random sampling and different types of data.</td><td>

Students will know that in a quota sampling, an interviewer or researcher selects a sample that reflects the characteristics of the whole population.
Students will know opportunity sampling consists of taking the sample from people who are available at the time the study is carried out and who fit the criteria you are looking for.
Students will know the advantages and disadvantages of quota sampling.

<table>
<tr><th colspan="2">Quota sampling</th></tr>
<tr><th>Advantages</th><th>Disadvantages</th></tr>
<tr><td>• Allows a small sample to still be representative of the population
• No sampling frame required
• Quick, easy and inexpensive
• Allows for easy comparison between different groups within a population</td><td>• Non-random sampling can introduce
• Population must be divided into gro which can be costly or inaccurate
• Increasing scope of study increases r of groups, which adds time and expe
• Non-responses are not recorded as s</td></tr>
</table>

Students will know the advantages and disadvantages of opportunity sampling,
<table>
<tr><th colspan="2">Opportunity sampling</th></tr>
<tr><th>Advantages</th><th>Disadvantages</th></tr>
<tr><td>• Easy to carry out
• Inexpensive</td><td>• Unlikely to provide a representative s
• Highly dependent on individual resea</td></tr>
</table>

Students will know that variables or data associated with numerical data are called quantitative variables or quantitative data.
Students will know that variables or data associated with non-numerical data are called qualitative variables or qualitative data
Students will know that a variable than can take any value in a given range is a continuous variable.
Students will know that a variable than can take only specific values in n a given range is a discrete variable.
Students will know that when data is presented in a group frequency table, the specific data values are not shown. The groups are come commonly known as classes.

</td><td>g</td><td>Students will need to know different types of data.</td><td></td></tr>
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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
	• *Students will know that class boundaries tell you the maximum and minimum values that belong in each class.* • *Students will know that the midpoint is average of the class boundaries.* • *Students will know that the class width is the difference between the upper and lower class boundaries.*			
LO : To learn about the large data set.	• *Students will know that the large data set contains data for a number of different variables at each weather station.* • **Daily mean temperature** in °C – this is the average of the hourly temperature readings during a 24-hour period. • **Daily total rainfall** including solid precipitation such as snow and hail, which is melted before being included in any measurements – amounts less than 0.05 mm are recorded as 'tr' or 'trace' • **Daily total sunshine** recorded to the nearest tenth of an hour • **Daily mean wind direction and windspeed** in knots, averaged over 24 hours from midnight to midnight. Mean wind directions are given as bearings and as cardinal (compass) directions. The data for mean windspeed is also categorised according to the **Beaufort scale**			

Beaufort scale	Descriptive term	Average speed at 10 metres above ground
0	Calm	Less than 1 knot
1–3	Light	1 to 10 knots
4	Moderate	11 to 16 knots
5	Fresh	17 to 21 knots

Notation A **knot** (kn) is a 'nautical mile per hour'. 1 kn = 1.15 mph.

• **Daily maximum gust** in knots – this is the highest instantaneous windspeed recorded. The direction from which the maximum gust was blowing is also recorded
• **Daily maximum relative humidity**, given as a percentage of air saturation with water vapour. Relative humidities above 95% give rise to misty and foggy conditions

• **Daily mean cloud cover** measured in 'oktas' or eighths of the sky covered by cloud
• **Daily mean visibility** measured in decametres (Dm). This is the greatest horizontal distance at which an object can be seen in daylight
• **Daily mean pressure** measured in hectopascals (hPa)

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	• *Students will know that for oversee locations the only data recorded are Daily mean temperature, daily total rainfall, daily mean pressure and daily mean windspeed.* • *Students will need to know the range of data from the data set.*			