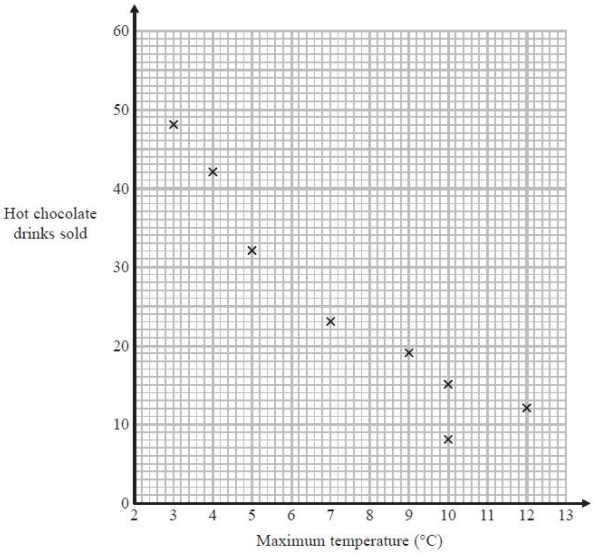
Learning Journey for Statistics
Scatter Graphs

How does this unit link to prior learning?	What will you be learning about?
• Plotting points on a grid using (x, y) coordinates and reading coordinates accurately. • Understanding x- and y-axes and which variable to place on each axis. • Recognising numerical patterns in sequences and datasets. • Calculating and understanding mean, median, mode, and range to summarise data. • Plotting straight lines and understanding gradients. • Drawing conclusions from data and graphs. • Understanding the concept of correlation: positive, negative, or none. • Estimating and drawing a line of best fit through data points. • Using the line of best fit to make simple predictions. • Comparing datasets and identifying differences in spread or central tendency. • Understanding that two quantitative variables can have a relationship that may be linear or non-linear.	• Interpret and construct scatter graphs. Know and apply words associate word with correlation. Be able to draw and find an equation for the line of best fit. Be able to calculate and interpret Spearman's Rank and Pearson's Rank Correlation Coefficient. **Key vocabulary** Analyse, construct, scatter graph, scatter diagram, interpret, line of best fit, plot, formula, Spearman's Rank, Pearson's Rank, correlation, coefficient, positive, negative, zero, causation, association, interpolation and extrapolation

Prior Knowledge



On another day the maximum temperature was 6 °C and 35 hot chocolate drinks were sold.

(a) Show this information on the scatter graph.

(b) Describe the relationship between the maximum temperature and the number of hot chocolate drinks sold.

(c) Draw a line of best fit on the scatter diagram.

One day the maximum temperature was 8 °C.

(d) Use your line of best fit to estimate how many hot chocolate drinks were sold.

We will develop our learning each week by focusing on:

	RAG
Lesson 1: Drawing Scatter Graphs Know when it is appropriate to use scatter graphs. Know to plot the dependent variable on the y-axis and the independent variable on the x-axis.	

Lesson 2: Interpreting Scatter Graphs Recognise correlations Interpret correlations Read values from a scatter graph Draw a line of best fit and make predictions	
Lesson 3: Lines of Best Fit Draw a line of best fit by eye through the mean point Find the equation of a line of best fit (H) Interpret the gradient of a line of best fit (H)	
Lesson 4: Spearman's Rank Correlation Coefficient Interpret SRCC and understand what it shows Calculate SRCC using the formula (H) Understand when to use SRCC (H)	
Lesson 5: Pearson Product Moment Correlation Coefficient (H) Interpret PMCC and understand what it shows Understand when to use PMCC Understand the difference between SRCC and PMCC	
Lesson 6: Revision Lesson Select resources to use to revise for the end of topic assessment	
Lesson 7: Assessment Lesson Do 10-minute top up and go through answers together, students to self assess Open book assessment done in silence	
Lesson 8: Feedback Lesson Students to highlight their traffic light sheet. Teacher to go through assessment and students to self-assess in green pen. Students to complete the NOW section of the WOW-HOW-NOW sheet.	

How will this help you in the future?	
KS4	**Beyond LHS**
• Recognising independent (explanatory) and dependent (response) variables. • Reading and interpreting graphs, including trends, clusters, and differences. • Recognising and describing correlation: positive, negative, or no correlation. • Distinguishing between linear and non-linear relationships. • Spotting outliers and anomalies and understanding their effect on trends. • Plotting straight lines and understanding the concept of gradient (rise/run). • Drawing and interpreting a line of best fit. • Using a line of best fit to make predictions for values not plotted. • Understanding that correlation does not imply causation in interpretation.	• **Making data-driven decisions:** Scatter graphs teach you how to interpret relationships between two variables, which is essential in fields like business, science, medicine, and finance. • **Identifying trends and patterns:** The ability to spot positive, negative, or no correlation helps in analysing patterns in real-world data, like traffic accidents vs. weather conditions, or energy usage vs. temperature. • **Predicting outcomes:** Using a line of best fit to make reasonable predictions is useful in forecasting, e.g., predicting future sales, population growth, or exam results. • **Higher education and STEM careers:** Fields like economics, engineering, medicine, environmental science, and social science frequently require analysing data relationships using scatter plots.