Learning Journey for Statistics
Time Series Graphs

How does this unit link to prior learning?

- **Reading and interpreting graphs** – understanding information shown on line graphs, bar charts, and pie charts.
- **Plotting coordinates** – using x- and y-axes accurately.
- **Scales and intervals** – reading and choosing appropriate scales on axes.
- **Collecting and presenting data** – gathering data and displaying it in graphical form.
- **Measures of average** – calculating and interpreting mean, median, mode, and range.
- **Comparing data sets** – identifying similarities and differences between sets of data.
- **Recognising patterns and trends** – describing increases, decreases, and fluctuations in data.
- **Using percentages and ratios** – interpreting changes and comparisons within data.
- **Understanding variables** – recognising that one variable may change in relation to another.
- **Problem-solving with data** – drawing conclusions and making predictions from graphical information.

What will you be learning about?

- Drawing and interpreting time series graphs.
- Identify and calculate moving averages and trends in data.
- Identify and calculate mean seasonal variations and use them to make predictions.

British Values

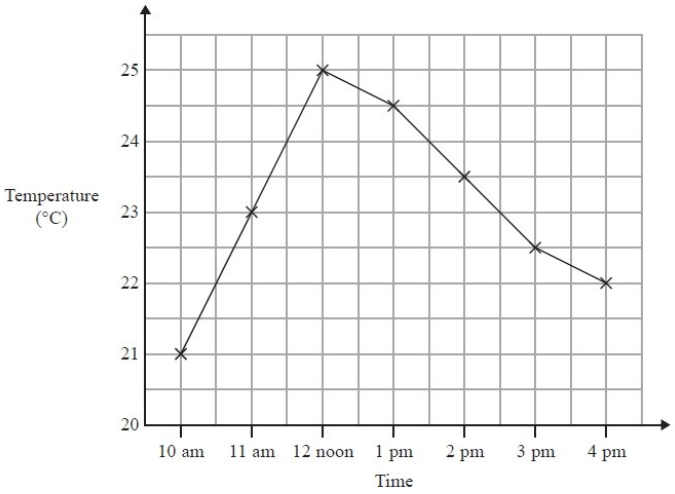
- Tolerance - that trend lines may slightly differ and therefore predictions may be different but within a certain tolerance.
- Mutual Respect - listening and learning from both the teacher and peers to ensure a positive and productive learning environment.

Key vocabulary

Trends, averages, moving averages, time series, predictions, seasonal variation, cyclic.

Prior Knowledge

The graph shows information about temperatures in a greenhouse.



(a) Write down the temperature at 11 am.

(b) Write down the highest recorded temperature.

(c) Describe the change in temperature from 12 noon to 4 pm.

The table below shows some information about the number of times each student in a class was late last week.

Lates	Frequency
0	15
1	8
2	3
3	3
4	1

Work out the mean number of lates per student.

We will develop our learning each week by focusing on:

	RAG
Lesson 1: Draw and Interpret time series graphs Draw and interpret line graphs and time series. Identify trends in data through inspection. Draw trend lines and know they show the general trend of data.	
Lesson 2: Moving Averages Calculate moving averages. Draw a trend line through moving averages and identify trends.	
Lesson 3: Seasonal Variation Interpret rising, falling and level trends on a time series graph. Identify seasonal variation on a time series graph.	
Lesson 4: Mean Seasonal Variation (HIGHER ONLY) Calculate the estimated mean seasonal variation. Know that the predicted value = trend line + seasonal variation.	
Lesson 5: Revision Lesson Select resources to use to revise for the end of topic assessment	
Lesson 6: Assessment Lesson Do 10-minute top up and go through answers together, students to self assess Open book assessment done in silence	
Lesson 7: 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

- **Mathematics** – identify trends, calculate averages, compare data, and make predictions.
- **Geography** – show changes in population, climate, migration, river levels, and development over time.
- **Biology** – track population growth, disease spread, and plant growth.
- **Chemistry** – record temperature changes and reaction rates during experiments.
  Physics – analyse motion using distance-time and velocity-time graphs.
- **Business Studies** – monitor sales, profits, costs, and market trends.
- **Computer Science** – analyse data from sensors, networks, or website traffic over time.

Beyond LHS

- **Business** – tracking sales, profits, customer numbers, and stock levels.
- **Finance and banking** – analysing share prices, exchange rates, and spending patterns.
- **Healthcare** – monitoring patient recovery, disease outbreaks, and hospital admissions.
- **Weather forecasting** – recording temperature, rainfall, and wind speeds over time.
- **Sports** – tracking performance, fitness, and team statistics.
- **Engineering** – monitoring machine performance, energy use, and safety data.
- **Transport** – analysing traffic flow, passenger numbers, and journey times.

• **PE** – track fitness levels, heart rate, and performance improvements. • **History** – display changes in population, industry, or economic indicators across different periods.	**Government and public services** – tracking population changes, crime rates, and employment levels. • **Technology** – monitoring website visits, app usage, and system performance.