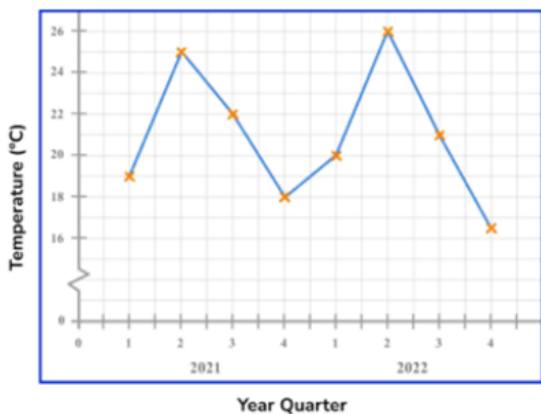


Y10 STATISTICS UNIT 6: TIME SERIES ANALYSIS

Key words:

- **Seasonal trend** – a repeating pattern in consumer behaviour, demand, or interest, influenced by changing seasons, holidays, or specific times of the year.
- **Cyclic trend** – A cycle occurs when the data exhibit rises and falls that are not of a fixed frequency
- **Extrapolate** – extending the trend line to estimate outside of the data points
- **Interpolate** – using the trend line to estimate inside/in between data points.
- **Moving average** – These can be 2-point, 3-point or 4-point and you find the mean of that many numbers at a time until the list is complete.
- **Quarter** – the name given to each part of the year (3 month periods)
- **Trend line** – a line of best fit drawn through the moving averages plotted. It helps us to see the trend better by smoothing out the peaks and troughs.

A **time series graph** is a line graph that shows data such as measurements, sales or frequencies over time. They can be used to show a pattern or trend in the data and are useful for making predictions about the future such as weather forecasting or financial growth.



E.g. This **time series graph** shows the temperature of a town recorded over two years at three-monthly periods known as quarters.

The coordinates are plotted and then joined together with **straight line segments**.

How to draw a time series graph

1. Draw and label a horizontal scale based on the time intervals of the data provided.
2. Draw and label the vertical axis, choosing an appropriate scale.
3. Plot the points and join with straight line segments.

Month	Temp. (°F)	Moving average
Jan	39	
Feb	42	
Mar	50	44
Apr	60	51
May	71	60

To calculate a moving average, you first need to check the type of moving average e.g. 3 point, 4 point etc.

This table shows a 3-point moving average being calculated.

This will tell you how many numbers to use each time when finding the mean. You then move 1 number on and use the next 3 numbers to find the average and so on until all the numbers in the list have been used at least once.

