

Time series graphs - this is the collective name for all graphs that have **time** as the x-axis. There are 3 types of graph:

- random/erratic
- repeated/cyclic
- ones with a particular trend/direction

'Seasonality' & Cyclic time series

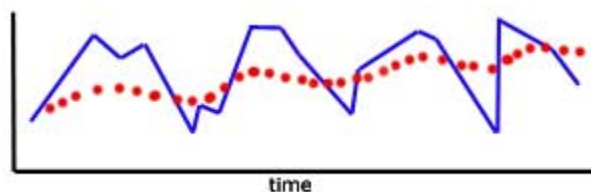
Seasonality is the term for data that has a periodicity of one year. That is, it alters over a period of one year, then repeats to some degree. The highs and lows may alter, but the general shape of the graph is similar year on year.

Similarly a **Cyclic** time series repeats itself. However, this is a more general term. The period may be seconds (like the beat of a heart) or thousands of years (like the coming and going of ice ages).

Trends - the 'Moving Average'

A **trend** is a simplification of chaotic time-related data to show the underlying movement of values.

A **Moving Average** is simply the average of consecutive blocks of data. In this way, fluctuations in a curve are 'ironed out'.



The number of pieces of data in a block is termed the number of 'points'.

- 3 pieces of data in a block is a '3 point' moving average
- 10 pieces of data in a block is a '10 point' moving averageetc.

it is important to remember that the starting point of each block advances by one number each time.

Example - calculate **four point** moving averages for the following results:

1 3 8 4 5 7 3 8 2 13

4 point numbers	4 point average
1 3 8 4	4
3 8 4 5	5
8 4 5 7	6
4 5 7 3	4.75
5 7 3 8	5.75
7 3 8 2	5
3 8 2 1	3.5
8 2 13	3.5

NB plotting of moving average points - the moving average for each block of data should be plotted in the **middle** of each number block

That is, the first moving average should be plotted between the 2nd and 3rd. reading along the x-axis.

The second moving average should be plotted between the 5th and 6th reading, and so on.