

# Recognise correlation (and know it doesn't indicate causation)

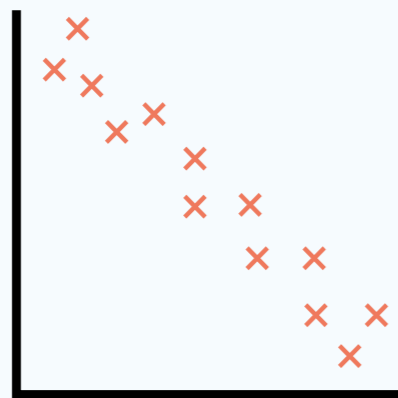
We will look at scatter graphs, the correlation that the graphs show, how to draw a line of best fit, and interpret the correlation, extrapolation and whether the correlation indicates causation.

- Check that you can:**
- plot coordinates on a grid
  - interpret the scale of a graph.

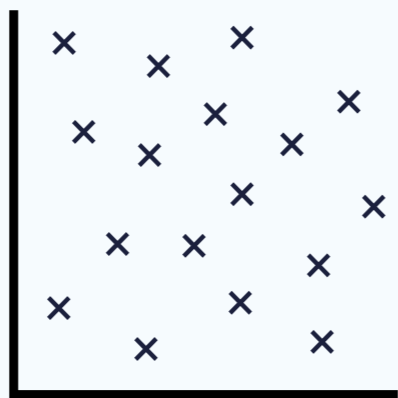
## Scatter graphs and their correlation



**Positive correlation**



**Negative correlation**



**No correlation**

## Line of best fit

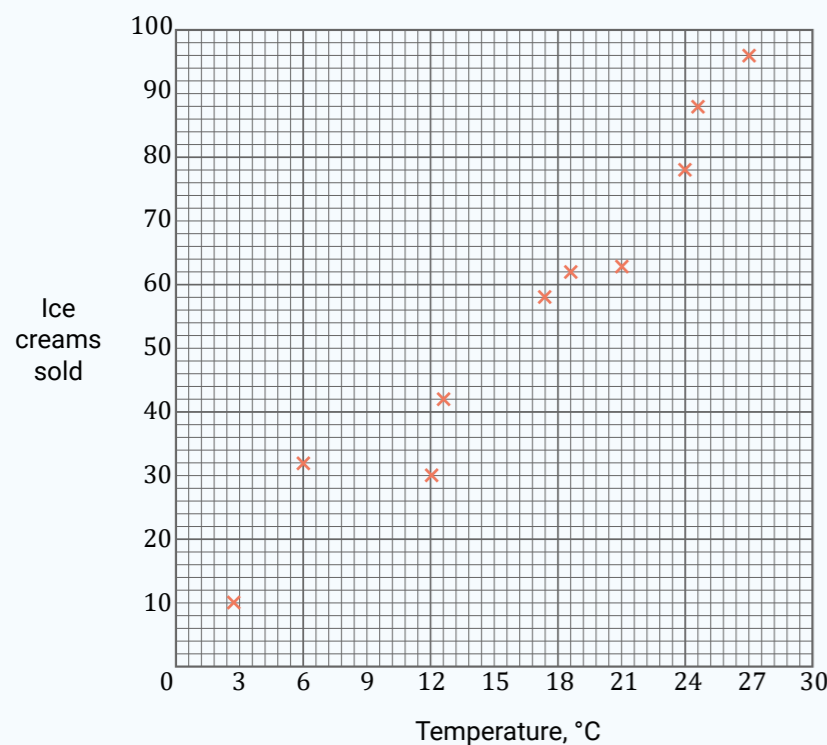
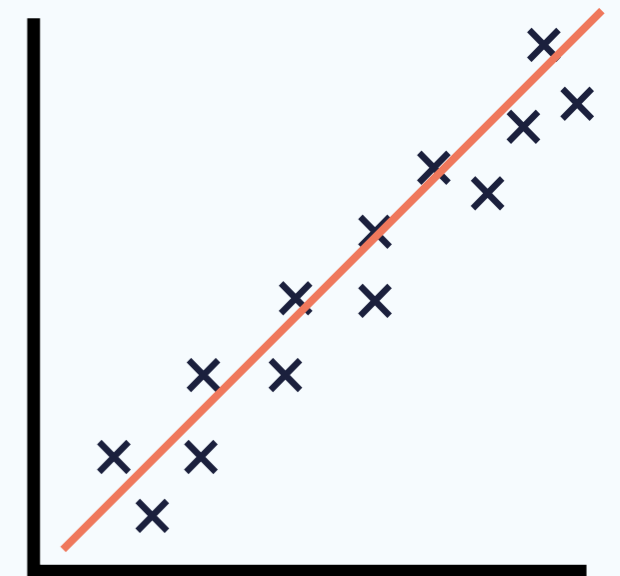
**You can only draw a line of best fit when there is a positive or negative correlation.**

The line of best fit is always a straight line.

The line of best fit starts before the first point and finishes after the last point.

There are approximately the same number of points on each side of the line of best fit.

The line of best fit does not necessarily pass through the origin.

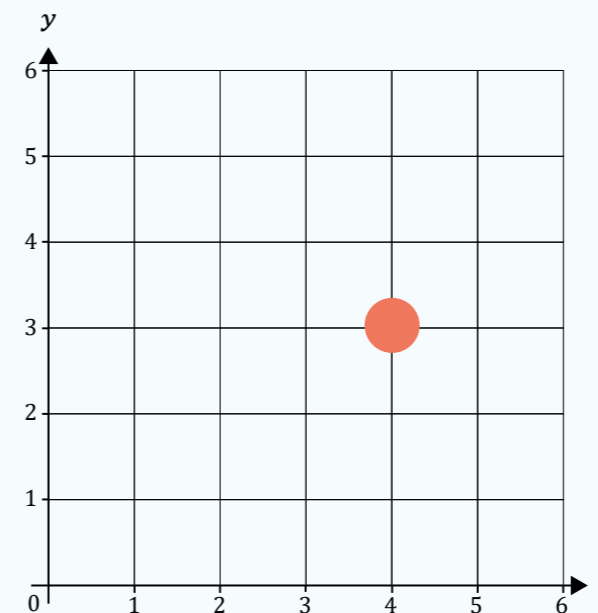


There is a positive correlation, and it looks as if the temperature is the reason for the sale of more ice cream. However, there may be other reasons – perhaps there are different proportions of adults and children on different days; maybe children eat more ice cream?

We cannot necessarily use the trend of this graph to predict the sales of ice cream if the temperature increases – maybe on the day the temperature reaches 32, more people will stay away.

**Coordinates** are always plotted with the  $x$ -coordinate first, then the  $y$ -coordinate:

The circle is at (4,3).



## REMEMBER!

Be ready to explain, clearly but briefly, why data that is beyond the range of the graph could be unreliable.

Be able to think of reasons why, just because we have a strong correlation, one event does not necessarily cause the other.