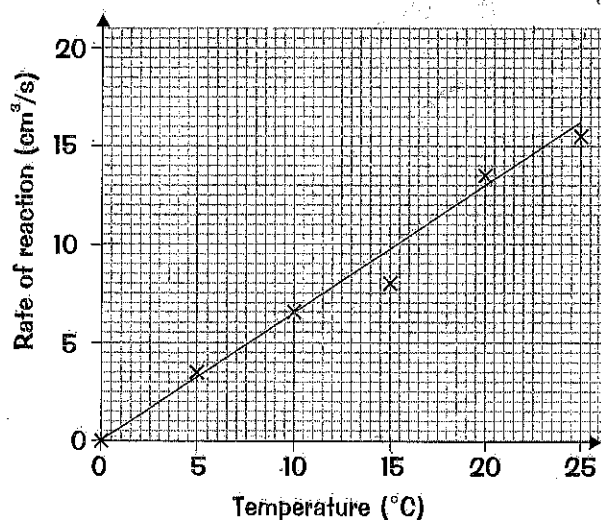


# Understanding Correlation

Scatter diagrams are really good at showing the relationship between two variables. And the fun doesn't stop there — you can even describe that relationship with fancy words like positive correlation and negative correlation. I bet you can't wait to get stuck in — it's a page of graphical treats.

## Example

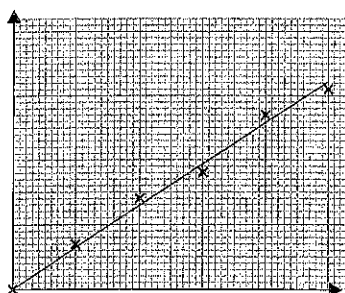
Simon did an experiment to investigate how temperature affects the rate of a reaction, and plotted a graph of his results. What type of correlation does the graph show?



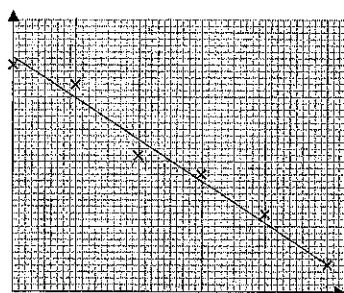
A correlation is a relationship between two variables.

1 Look at the direction of the line of best fit.

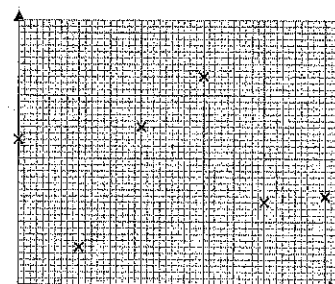
There are two types of correlation it could look like (or if you couldn't draw a line of best fit, there's probably no correlation at all).



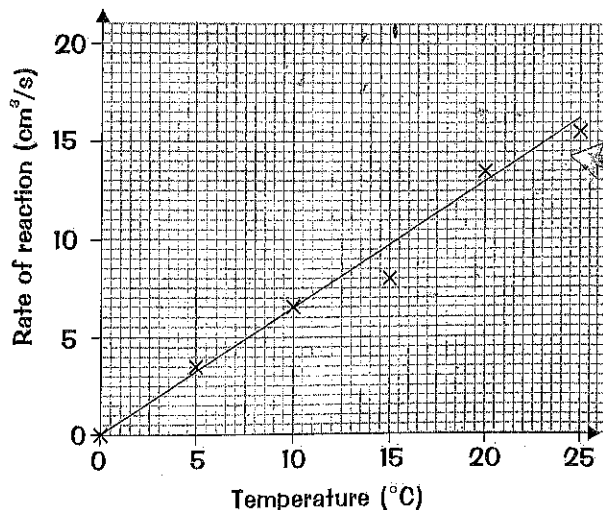
If both values increase together, it's known as a positive correlation.



It's called a negative correlation if one value increases as the other decreases.



If one variable has no effect on the other, there's no correlation at all. There's no hope of drawing a line of best fit here.



As the temperature goes up, so does the rate of reaction — so you can say that the graph shows a positive correlation.

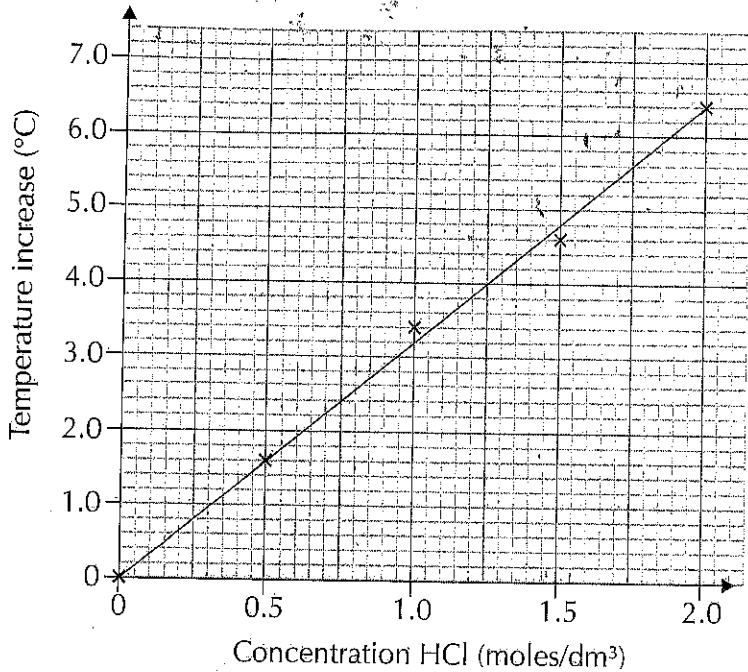
# Understanding Correlation

The ups and downs of relationships — it's exciting stuff. Here are some lovely scatter diagrams complete with lines of best fit so you can put your new-found relationship knowledge to the test.

**Q1** Some students did an experiment to find out how increasing the concentration of acid affects the amount of heat produced in a neutralisation reaction. Describe the trend in their results.

**CHEMISTRY**

A relationship might also be referred to as a trend.



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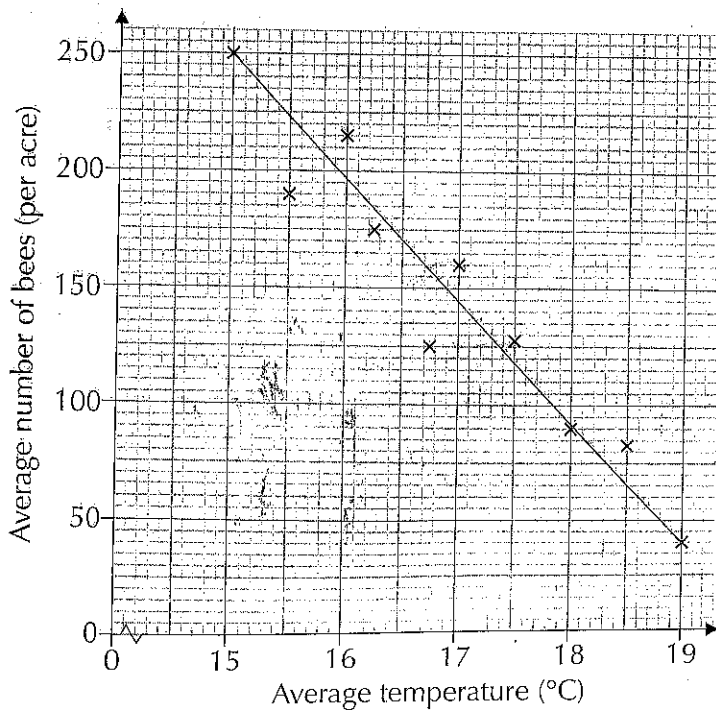
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**Q2** The graph below shows the results of a study investigating the link between the number of bees in an area and the temperature of the area. Describe the relationship it shows.

**BIOLOGY**



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