Year 8 Mastery Unit 10 – Bivariate Data

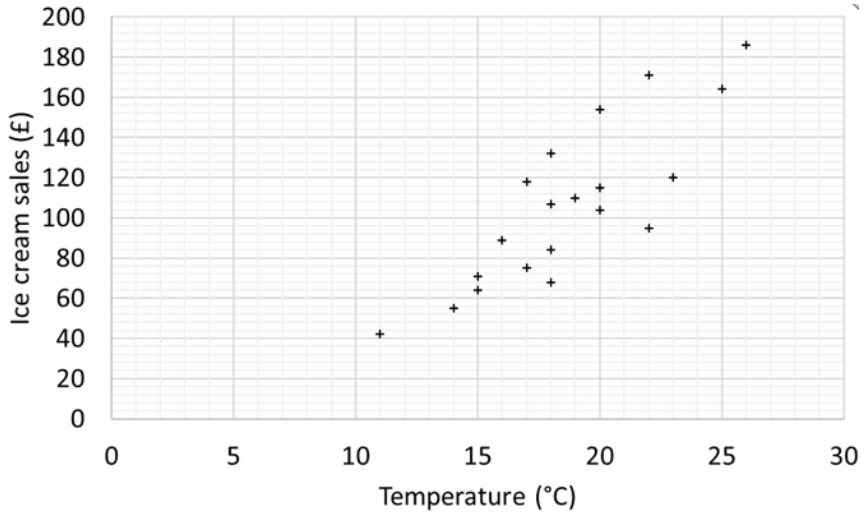
Bivariate Data

- When each entry in a data set has two corresponding pieces of information, we call it bivariate data.
- Here we can then compare data and make connections between them.
- Example:
  The taller someone is the heavier they are.

Participant	1	2	3	4	5
Height (m)	1,53	1.63	1.61	1.75	1.49
Weight (kg)	60.7	66.1	65.2	70.1	59.4

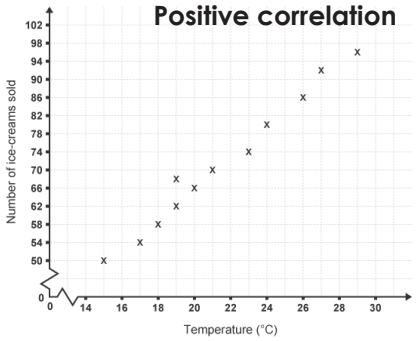
Scatter Graphs

- Bivariate data can be represented as a scatter graph when both values are quantitative data.
- Each point on the scatter graph shows a single object is measured according to the two variables.
- You can make connections with the data based on the trend of the data.
  Example: The hotter it is, the more ice cream is sold.

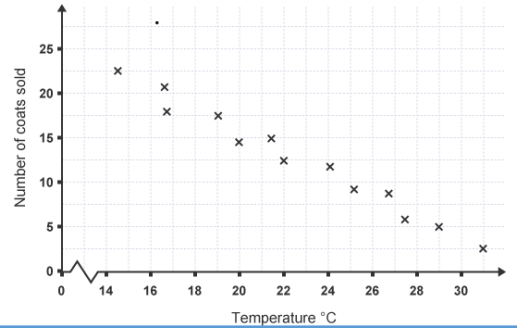


- We can use scatter graphs to see if there is a **correlation**, or connection.

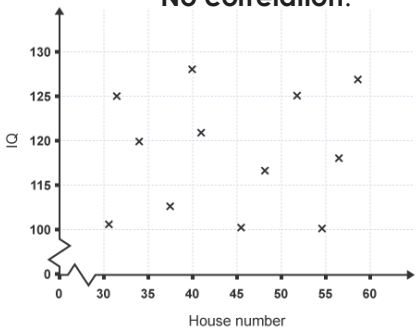
Positive correlation



Negative correlation



No correlation.



Keyword/Skill	Definition/Tips
Discrete	Discrete data can only have a finite or limited number of possible values
Continuous	Continuous data can have an infinite number of possible values within a selected range
Quantitative	Quantitative data that can be counted (discrete), quantitative date that can be measured (continuous)
Qualitative	Information that describes something
Univariate Data	Univariate means "one variable" (one type of data).
Bivariate Data	Data for two variables (usually two types of related data).
Correlation	When two sets of data are strongly linked together
Causation	The action of causing something.
Frequency	How often something happens.
Table	Information (such as numbers and descriptions) arranged in rows and columns.
Data	A collection of facts, such as numbers, words, measurements, observations or even just descriptions of things.
Proportion	A part, share, or number considered in comparative relation to a whole.
Variable	A variable is an attribute that describes a person, place, thing, or idea.
Trend	The general direction a group of data follows.
Interpolate	Estimating a value inside a set of data points.
Extrapolate	Estimating a value outside a set of data points.

Other Topics/Units this could appear in:

- Averages
- Averages from Tables
- Sampling
- Histograms

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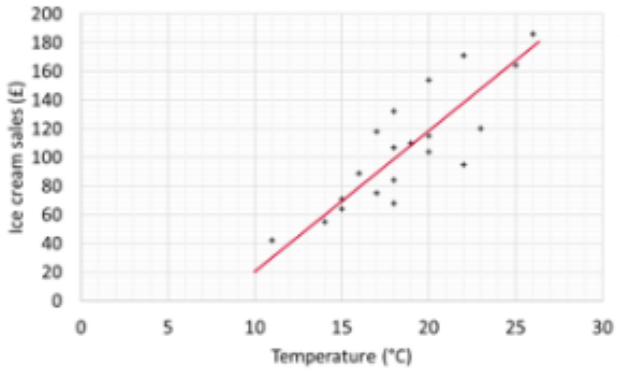
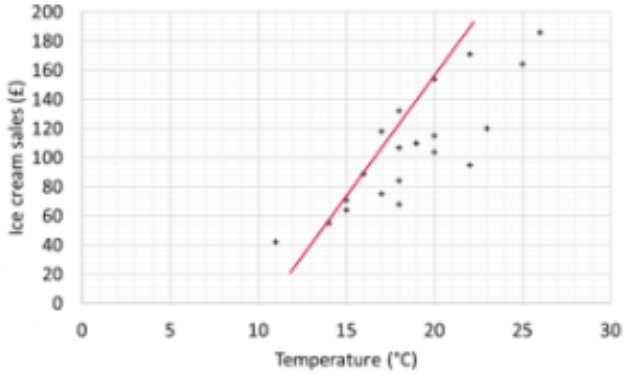
Line of Best Fit

- The line of best fit is a straight line that minimises the distance from each data point to the line.

Example: This line is as close to all the pieces of data as possible

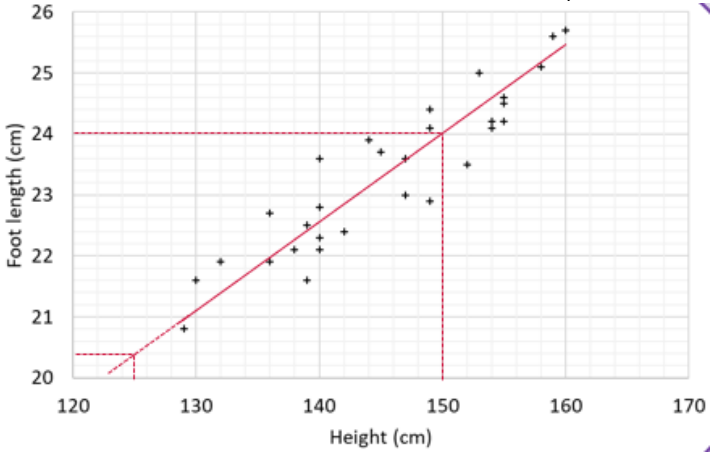


Non-Example: The line is very close to some pieces of data but distance to the data 'below' the line is much greater



Interpolation

- You can use a line of best fit to find out expected results



- Using my line of best fit I can expect a 150cm student to have a 24cm foot length.
- We can only use interpolation when there is correlation between two variables

Two-Way Tables

- Two-way tables are a useful way of recording bivariate data.

- One variable determines the category for each column.
- The other variable determines the category for each row.

		Year		
		7	8	9
Siblings	Brothers but no sisters	45	52	49
	Sisters but no brothers	62	39	54
	Brothers and sisters	51	48	31
	No siblings	34	46	50

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