



18 - Collecting Data

Types of Data

Data can be described as facts or statistics that is collected and grouped together for reference and analysis. Data can be collected in several different ways and can be grouped into several different types, outlined below:

Primary: data that is collecting by **yourself** (e.g. using a questionnaire)

Secondary: data which is collected by **someone else** (e.g. data from a website)

Qualitative: descriptive data which uses **words** not numbers (e.g. hair colour, ice cream flavour)

Quantitative: measures quantities or amounts, uses **numbers** (e.g. shoe size, number of goals)

Quantitative data can also be distinguished by two further types:

Discrete: the data can only take **certain numerical values**; data that is counted.
e.g. number of goals, number of customers in a shop

Continuous: the data can take **any value in a range**; data which is measured.
e.g. height of a person, money

Bias

When collecting data we need to ensure our sample is not biased. A biased sample is a sample that does not properly reflect the whole population. To spot bias you need to think about: where, when and how the sample is taken.

Types of Sampling

The whole group you are collecting data from is known as the **population**; from this we take a **sample** which is a smaller group which fairly represents the whole population. A **census** is data that is collected for the whole population (every 10 years in the UK). There are two methods to decide on a sample:

Simple Random Sampling

1. Assign a number to every member of the population
2. Randomly generate numbers using numbers from a hat or a computer calculator
3. Use the data from the corresponding members of the population

Stratified Sampling

A stratified sample involves grouping members of the population into classes before taking a proportionate sample from each class (e.g. grouped by age, language etc)

To perform a stratified sample we complete the following steps:

1. Divide the sample number by the total population
2. Then multiply the answer by each class
3. Round the answer to the nearest whole number

For example Greek = $\frac{70}{650} \times 145 = 15.615 = 16$ students

Sample of 70

Language	Number of students
Greek	145
Spanish	121
German	198
French	186

Linked Prior Topics

Tally Charts, Types of data

Vocabulary

Data, primary, secondary, qualitative, quantitative, discrete, continuous, sample, population, census, bias, stratified, simple, random

Linked Future Topics

Frequency tables, bar charts, pie charts, scatter graphs, presenting data, analysing data, interpreting data.