

## Frequency Tables

**Key words:** Frequency

Frequency: How often something happens

A **frequency table** is a way of recording how often something occurs in table form.

**Example:** A GAA player recorded the ages of all his clubmates in his local GAA club. Examine the results below.

14    13    14    15    13    14    13    12    13    15    12    14    13  
16    15    13    14    14    16    16    15    13    14    14    15

Complete the following table, using tally counts, to record the number of clubmates ages and draw a frequency table to show the results.

Age	Tally of Clubmates
12	
13	
14	
15	
16	

**Solution:**

Age	Tally of Clubmates
12	
13	
14	
15	
16	

**Tally marks** are used for quickly counting things. The 5<sup>th</sup> tally mark is drawn across the first four, as this makes it easier to count the total in groups of five.

Remember  $\overline{\text{||||}}$  = 5 counts

Frequency table for clubmates ages:

Age	12	13	14	15	16
Frequency	2	7	8	5	3

The total number of frequencies should add up the total number of players.

## Sampling

**Key words:** Population, Sample, Bias, Random Sample

Population: everyone who fits in the surveys category

Sample: only a part of the population will be surveyed

Bias: anything that changes the truth

Random Sample: people are chosen at random to take the survey

Collecting information from an entire **population** means asking everyone who could be asked.

**For example**, data could be collected from the whole school or from everyone who lives in Co. Kildare.

Collecting information from a **sample** means a part of the population will be surveyed. The sample information may then be used to make conclusions about the whole population.

**For example**, 18 second year students could be surveyed, the information could be taken as representing the opinions of the whole school. Data collected from a sample is called **sample data**.

If an incorrect sample is chosen, the results of any survey or experiment will be **biased**.

Bias can result from many factors:

- Failure to correctly identify the population
- Choosing a sample that is not representative of the population
- Failure of some people to respond to the survey
- Ambiguous or vague questions, like 'Are you tall?'
- People being careless when filling in a questionnaire and making errors
- People being dishonest when answering certain questions
- Asking leading questions that suggest a particular answer, such as 'do you agree that Barcelona FC are the best football team in the world?'

The size of the sample is very important. If the sample is too small, the results may not be very reliable. If the sample is too large, the data may take a long time to collect and analyse.

**For example**, asking the 2<sup>nd</sup> year students what their favourite subject is, is a manageable size sample. Asking the whole school what their favourite subject is, would take a long time to collect and analyse.

One of the ways to avoid **bias** in a survey is to take a **random sample**.

In a **random sample**, every member of the population being considered has an equal chance of being selected. Random samples need to be carefully chosen.

Methods of choosing a random sample could involve giving each member of the population a number and then selecting the numbers for the sample in one of these ways:

- Putting the numbers into a hat and then selecting however many you need for the sample.
- Using a random number generator on your calculator or computer.

- On your Casio calculator,



If you want to generate 3-digit numbers, press **SHIFT**, and then press **Ran #**.

Now press **=** and disregard the decimal point.

If the number displayed is 0.107, write 107.

Press **=** repeatedly to get more random numbers.