Histograms

Monday, 11 February 2019 7:43 pm

By the end of the lesson I would hope that you have the knowledge and understanding for the following points:

- Know what a frequency table is
- Know the difference between a Histogram and a bar chart
- Know what we use a histogram to show
- Know how to draw a histogram
  - Frequency on the y-axis
  - No gaps between the bars
- Know how to read information from a histogram

RECAP

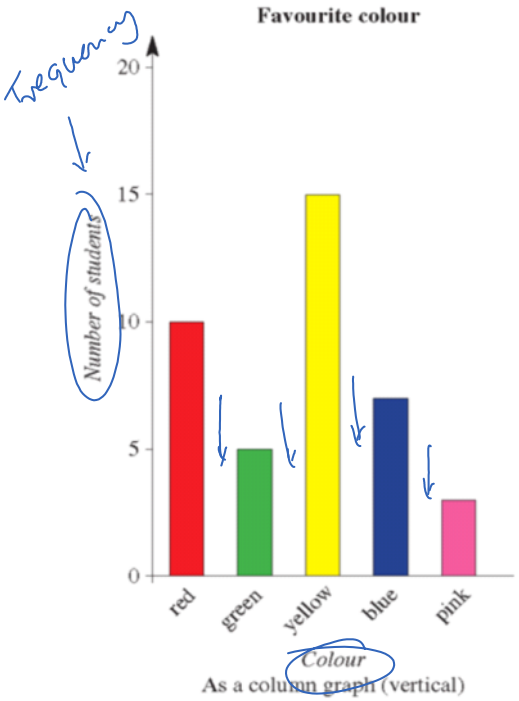
In previous lessons we have been looking at all the ways we can represent categorical and numerical data.
These have included:

- Dot plots
- Column Graphs
- Line Graphs
- Stem and leaf plots
- Pie charts
- Divided bar graphs

There are many more ways we can use too!
This lesson we are going to move to the next level.
We are going to start to look at something called a Histogram

Remember: Bar Charts

If we look at the following bar chart we can see some interesting things:

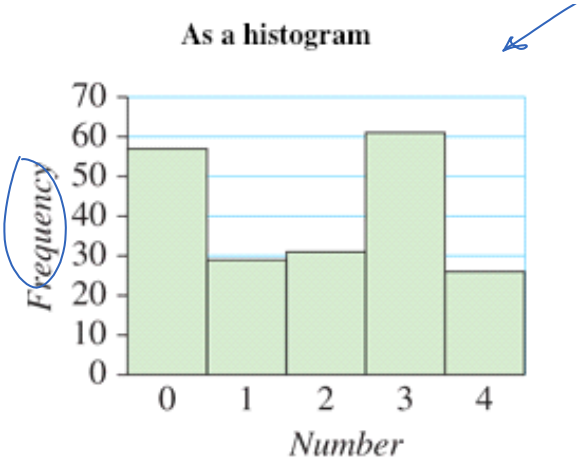


As a column graph (vertical)

This bar chart is being used to display Categorical Data
There are **gaps between each of the bars**
The number of students (frequency) is shown the vertical axis
The categories are shown on the horizontal axis

What is a histogram

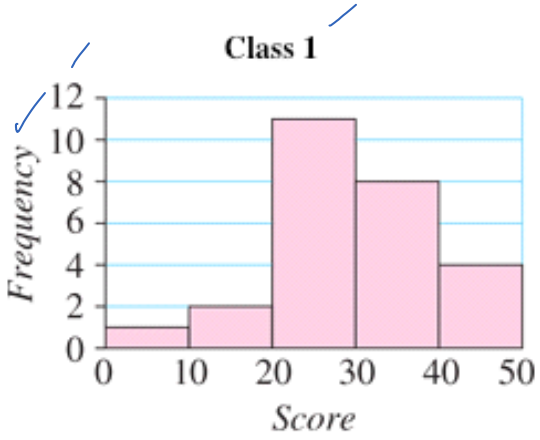
Histograms are awesome.
They are (almost) the same as bar charts.
Here is one example of a Histogram:



What do you notice about the difference?

Numerical data is used
Frequency is on the vertical axis
Numbers are shown on the horizontal axis.
The numbers sit in the centre of each bar
There are no gaps in the bars.

Here is another example:



What do you notice about this Histogram?

Numerical data is used
Frequency is on the vertical axis
Numbers are shown on the horizontal axis.
The numbers sit at the start and end of the bars! WHY?
There are no gaps in the bars.

0 - 9.999 | 1
10 - 19.999 | 1
20 - 29.999 | 1
30 - 39.999 | 1
40 - 49

Later in Mathematics you will find that Histograms have things called **Intervals**.
Histograms can be used to group data together.

Look at the above Histogram.
We know that 11 people scored between 20 and 30 but do we know the actual scores each person gained?

No!

This is an example of grouping data together.

How do we draw a Histogram

If we look at the way a Histogram ends up, we need to have some way to link the variable on the horizontal axis and the frequency.

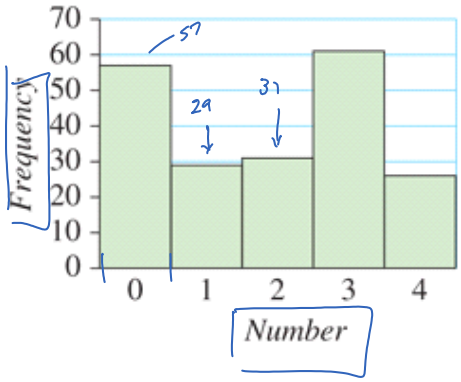
We draw a **Frequency Table!**

Here is an example of a frequency table and the Histogram which has been constructed from it:

As a table

Number	Frequency
0	57
1	29
2	31
3	61
4	26

As a histogram



Example:
Extracted from the Cambridge Essentials Textbook series

Represent the frequency table below as a histogram:

b

Number of words in story	Frequency
0–99	2
100–199	10
200–299	12
300–399	8
400–500	3