Statistics

Types of graph

Display type	Best used to…
Bar Graph	Show the number in categories
Circle Graph	Compare parts of the data to the whole
Double bar Graph	Compare two or more sets of data
Box whiskers plot	Show measures of variation
Histogram	Show frequency of data divided into intervals
Line Graph	Show change over time
Line Plot	Show frequency data on a number line

What is a histogram?

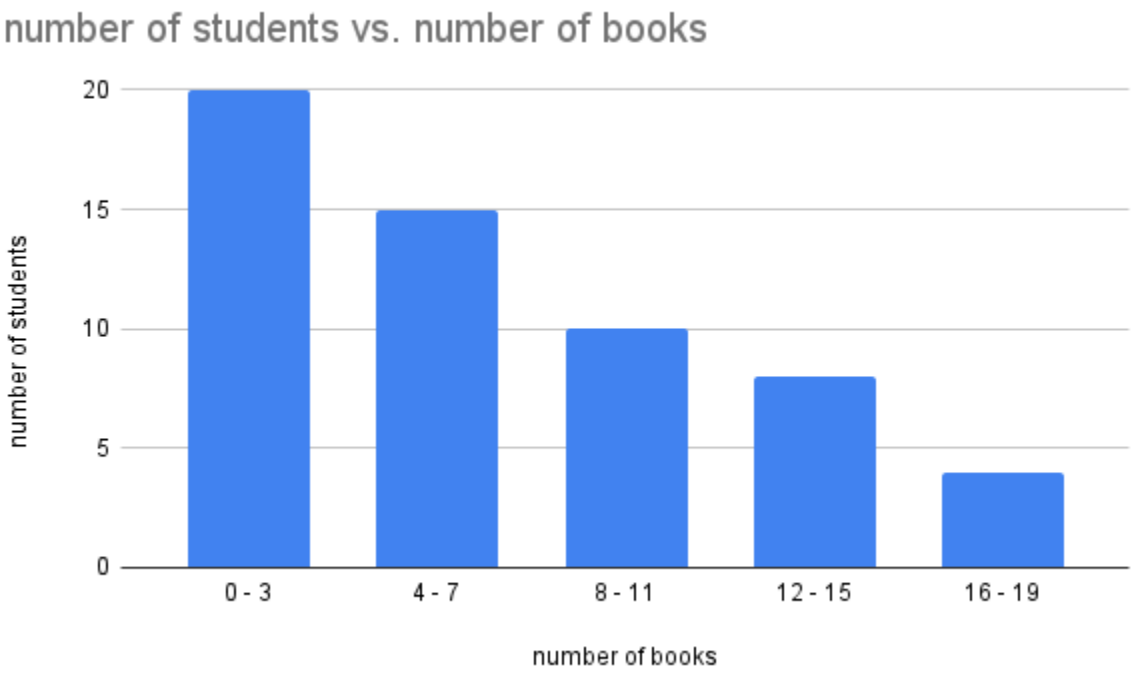
- It is a visual representation of how many times something happens.

Steps to make a histogram

1. You need a frequency table
    - Ex: the number fo books every student read

Number of books	Number of students
0 - 3	20
4 - 7	15
8 - 11	10
12 - 15	8
16 - 19	4

2. Place the ranges on the x-axis in this case it will be the number of books
3. Place the counts of the frequency on the y-axis in this case the number of students



Stem & leaf plot

- It orgnizes the data by using the place values of the numbers

We are going to explain by an example

Let's say we have data = {10, 11, 13, 31, 34}

1. We separate the ones place form the tens place
2. The tens place goes to the stem and it's written with no duplicates
3. The ones place written next to the number it has on the tens place

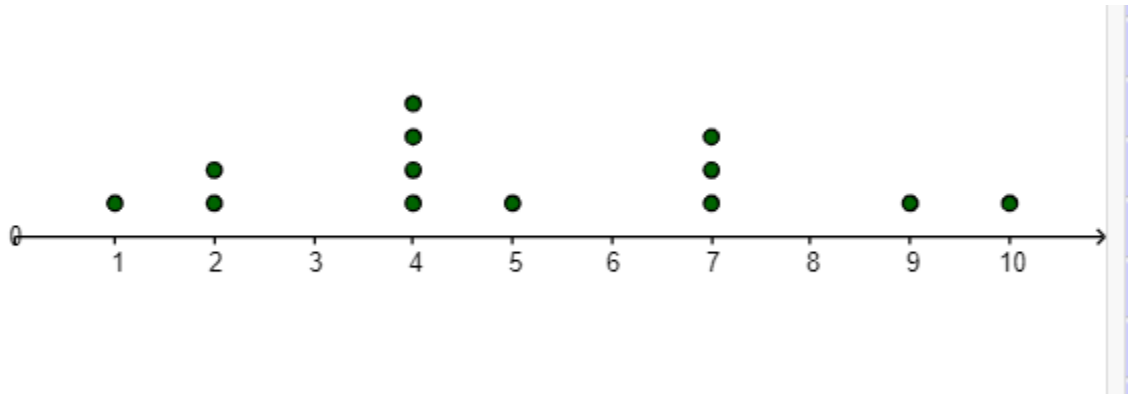
Stem leaf

1	0 1 3
2	
3	1 4

And that's how you make a stem and leaf plot
Don't forget the key as it's very important
Key 1 | 3 = 13
You can apply it to numbers with 3 digits or more, all you have to do is separate the ones from the number and put it on the leaf
You can apply it to decimals too, whole number on stem and decimal on leaf

How to make Dot plots

Let's say we have data like this {1, 2, 2, 4, 4, 4, 4, 5, 7, 7, 7, 9, 10}
And it represent the number of hours the student study per week
So we will have a number line that starts from zero and end at ten



then we place dots for evey number in the data

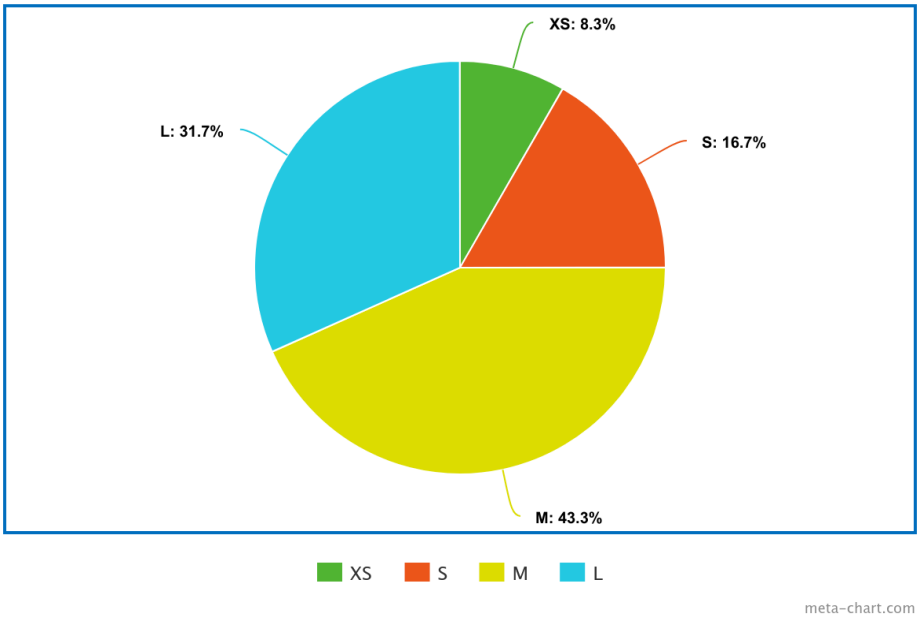
Pie chart

It'a type of graph that is divided into slices, it's in a shape of circle
It's represented as a percentage for every slice
Let's take an example of size shirts of a team

Size	Frequency	degree	percentage
XS	5	30	8.5%
S	10	60	17%
M	26	156	44.2%
L	19	114	32.3%

Total players = 60
Calculate how many degrees does a player should have?
360 / total players = 6 degree
Calculate how much percent does a player should have?
100 / total players = 1.7 approx.

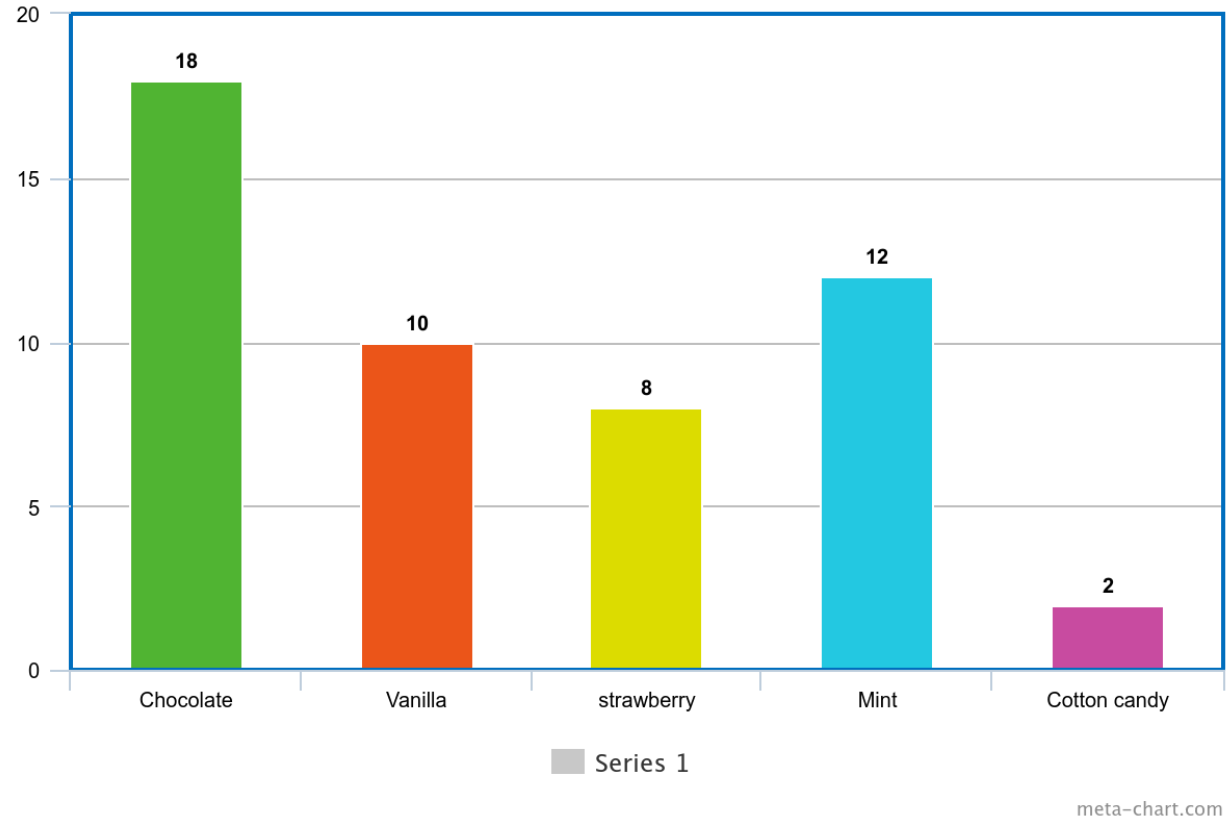
- It's okay if the percentage get a little over 100%, it happens when values are estimate



Bar chart

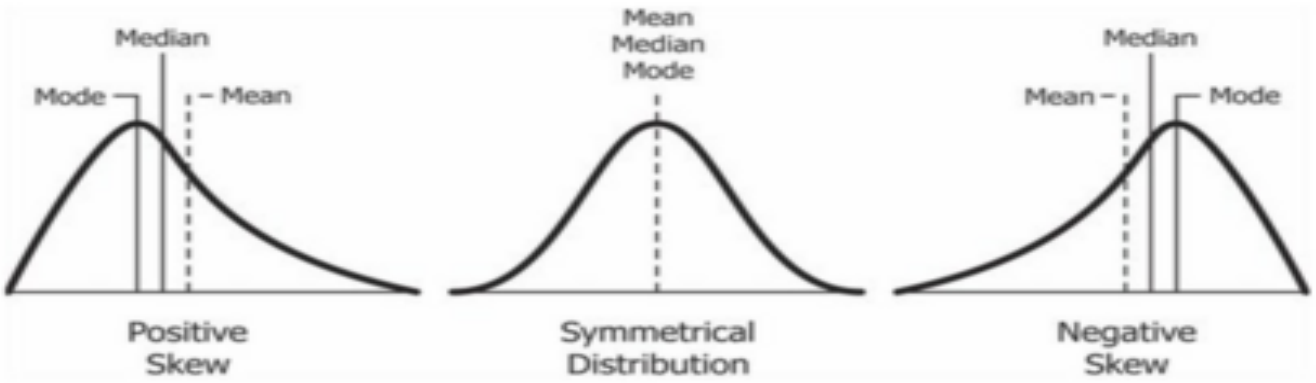
- It is used to compare different types of information
- On the x-axis we have qulaitative data
- On the y-axis we have numerical data or frequencies

Ex: let's say we want to choose just 3 flavours of ice-cream so we asked the visitors which ice-cream flavour they prefer and the answers were : {chocolate: 18, vanilla: 10, strawberry: 8, mint: 12, cotton candy 2}



Symmetry and Skewness

- A distribution is said to be symmetrical if it can be divided into two equal sizes of the same shape
- Other wise it's skewed it can be skewed to the right or to the left
- It is skewed to the right if it has long tail that trails to the right and vice versa


Median
Mode
Mean
Positive Skew
Mean
Median
Mode
Symmetrical Distribution
Median
Mean
Mode
Negative Skew