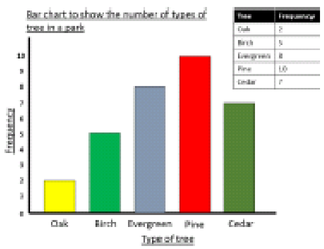
Bar Charts (Qualitative):

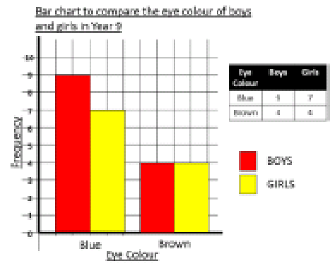
All bar charts must have:

- Title
- Frequency on the y-axis
- Equal bar widths
- Equal gaps between categories
- Labelled axis



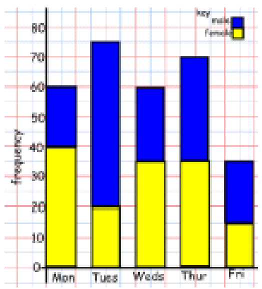
Comparative:

A comparative bar chart shows two sets of data alongside each other. It allows us to easily compare two data sets



Composite:

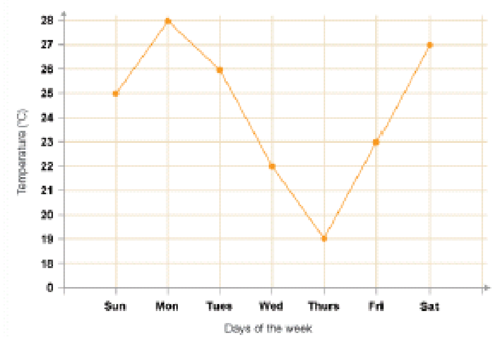
Composite bar charts split each bar into a subcategory, in this case gender. It is still easy to read the full total but also compare each gender.



Line Graphs (Discrete):

A line graph is often used to show a trend. It is plotted as a series of points, which are then joined with straight lines. The ends of the line graph do not have to join to the axes.

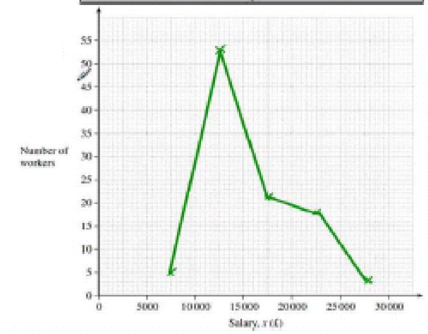
This line graph shows the midday temperature over a period of 7 days.



Frequency Polygons (Continuous) :

Frequency polygons are similar to line graphs however are used when the data is grouped. In this case we plot the **MIDPOINT** of each group.

Salary, x (£)	Number of workers
$5000 < x \leq 10000$	5
$10000 < x \leq 15000$	53
$15000 < x \leq 20000$	21
$20000 < x \leq 25000$	18
$25000 < x \leq 30000$	3



Linked Prior Topics

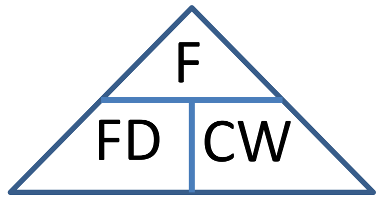
Types of data, mode, range, frequency tables

Vocabulary

Chart, graph, axis, labels, title, height, width, composite, comparative, key, total, modal, range, line

Linked Future Topics

Histograms, Conversion Graphs, Scatter Graphs, Frequency Polygons

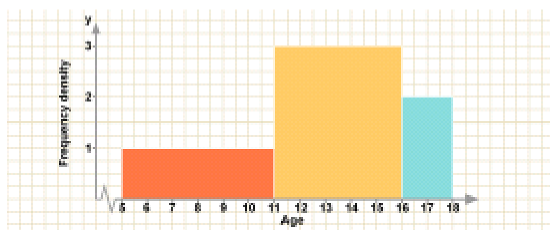


Reading a Histogram

The vertical axis on a histogram is always called frequency density.
We can calculate the frequency of a group of data from a histogram using the density formula:

$$frequency = frequency\ density \times class\ width$$

So if we were asked to calculate the frequency from this histogram:



We would get:

Age	Calculation	Frequency
5 – 11	1 x 6	6
11 – 16	3 x 5	15
16 – 18	2 x 2	4

If we were asked to calculate the mean or median from a histogram we would first convert frequency density into frequency as seen above.
From this we can calculate the mean etc in the same way as we would for a grouped frequency table.

Drawing a Histogram

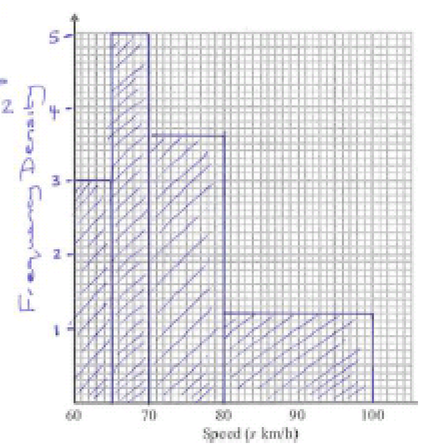
To draw a histogram we need to calculate frequency density using the following formula:

$$frequency\ density = frequency \div class\ width$$

We add an extra column onto the frequency table, as shown below:

Speed(s km/h)	Frequency	Frequency Density
$60 < s \le 65$	15	$15 \div 5 = 3$
$65 < s \le 70$	25	$25 \div 5 = 5$
$70 < s \le 80$	36	$36 \div 10 = 3.6$
$80 < s \le 100$	24	$24 \div 20 = 1.2$

We can then use this to create a histogram.



A histogram does not have to have a labelled frequency density axis. So sometimes the question may ask to complete the table or histogram when given partial information.

Linked Prior Topics
Bar charts, grouped frequency, density, formula triangles, reading graphs, axis

Vocabulary
Frequency, density, class width, height, width, bar, units, axis

Linked Future Topics
Drawing conclusions from presented data