

Creating Graphs in Excel (Answers)



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Version: 1.0

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1. Bar charts

Section 1.1 (recall)

1) When should you use a bar chart? Fill in the gap in the statement,

Bar charts should be used if you want to compare numeric values across different category data.

2) Bar charts can be vertical or horizontal. Can you think of a time when it would be a good option to use a horizontal bar chart?

Options can be,

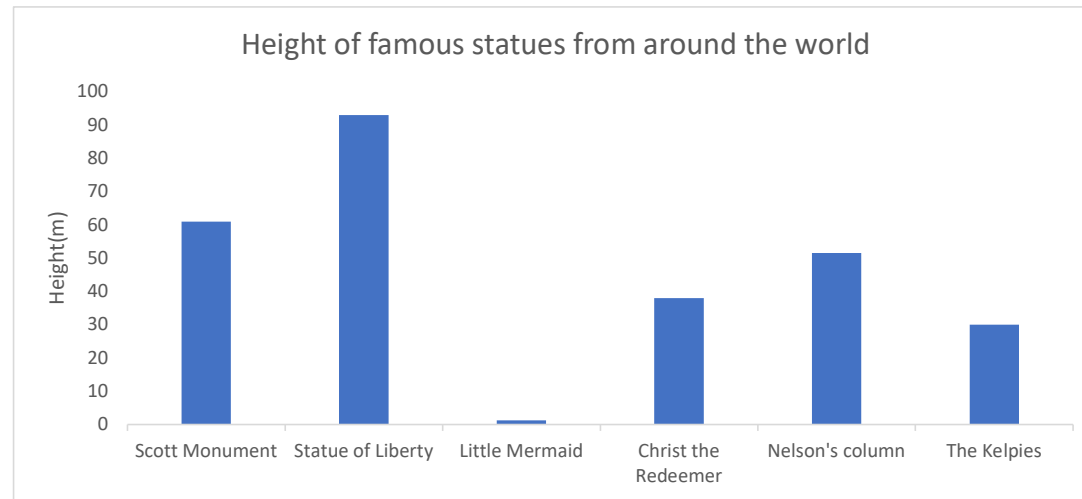
1. when there are many categories
2. the category labels are long.

Section 1.2 (apply)

3) Below is a bar chart that shows the heights of statues.

Using the + symbol to add a label to the y-axis that says "Height(m)"

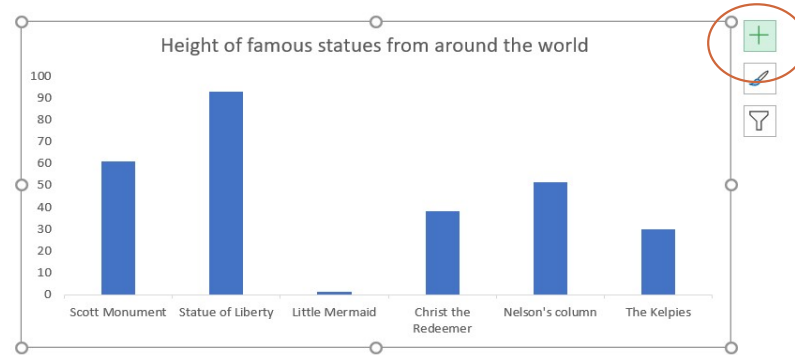
statues	height_m
Scott Monument	61
Statue of Liberty	93
Little Mermaid	1
Christ the Redeemer	38
Nelson's column	52
The Kelpies	30



1. Bar charts

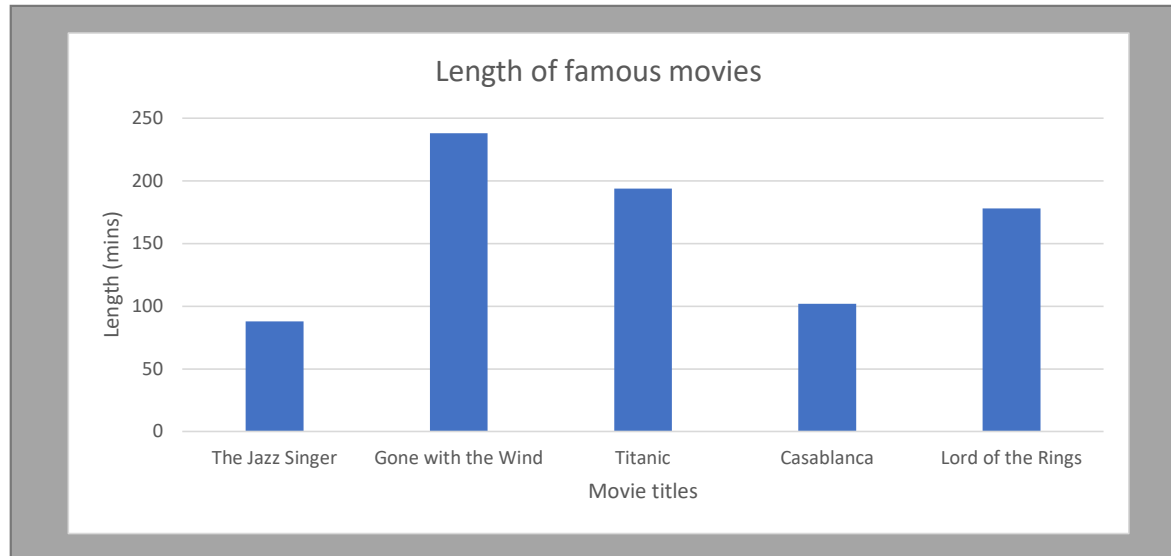
For teachers:

- 1) click on the graph to make the + button appear.
- 2) press on the + box on the right hand side
- 3) then right click on the axis title to amend it.



- 4) This dataset contains the length in minutes of movies. Create a bar chart using the dataset, then change the title to "Length of famous movies" and add axis titles.

movie	length_mins
The Jazz Singer	88
Gone with the Wind	238
Titanic	194
Casablanca	102
Lord of the Rings	178



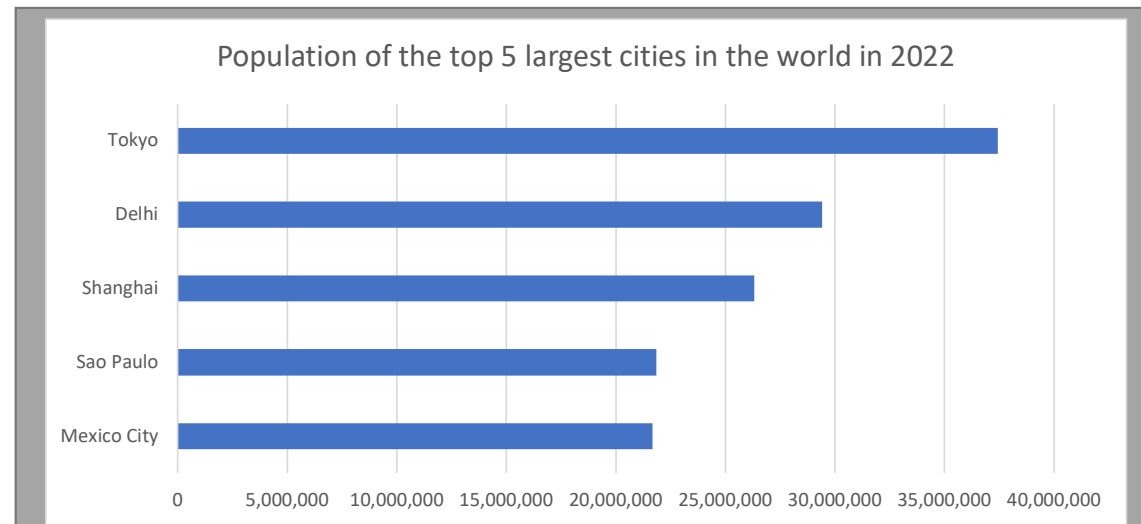
1. Bar charts

5) This dataset shows you the populations of the 5 largest cities in the world. Create a **horizontal** bar chart using the dataset and change the title.

city	population_2022
Mexico City	21,671,908
Sao Paulo	21,846,507
Shanghai	26,317,104
Delhi	29,399,141
Tokyo	37,435,191

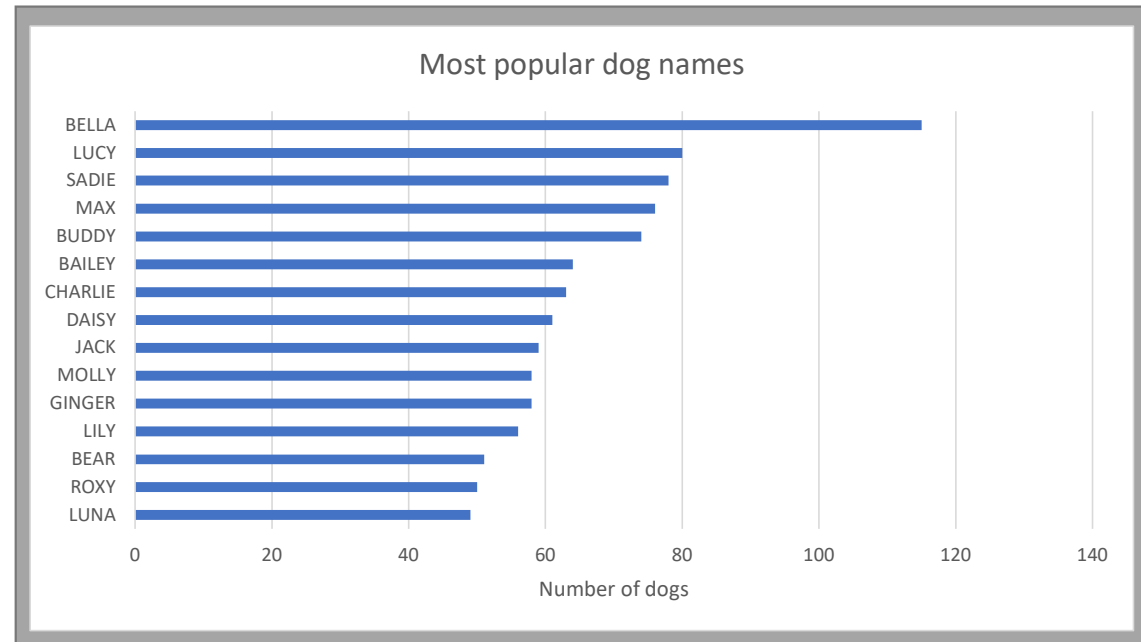
Source:

<https://worldpopulationreview.com/world-cities>



6) This dataset shows the names and number of dogs. Create a bar chart using the dataset, decide if you want it to be horizontal or vertical.

DogName	Count
LUNA	49
ROXY	50
BEAR	51
LILY	56
GINGER	58
MOLLY	58
JACK	59
DAISY	61
CHARLIE	63
BAILEY	64
BUDDY	74
MAX	76
SADIE	78
LUCY	80
BELLA	115



1. Bar charts

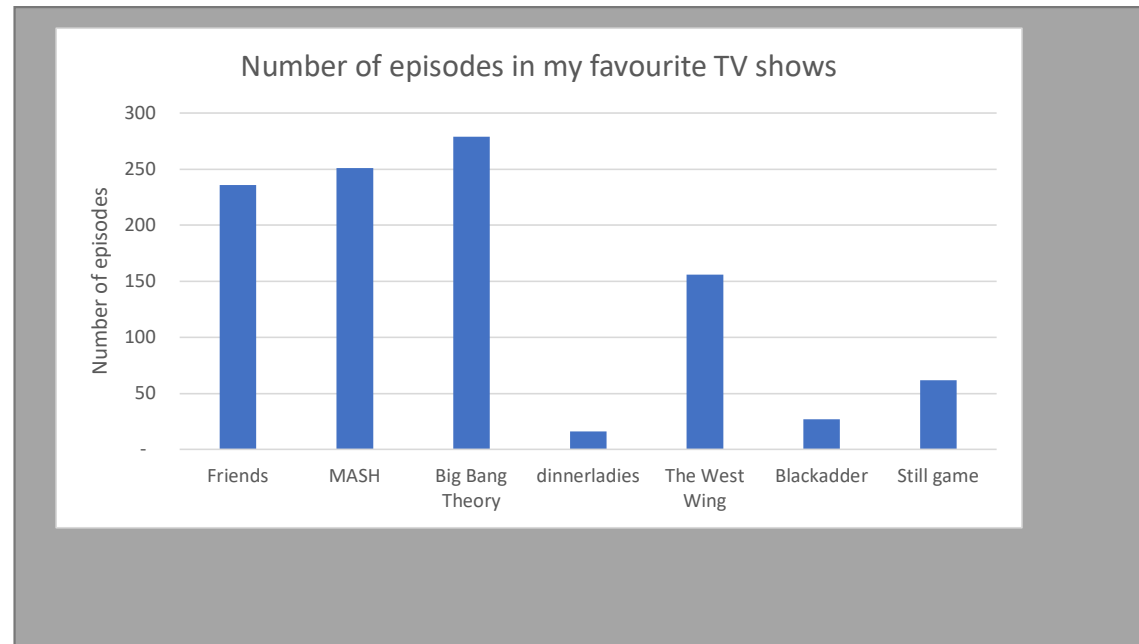
7) Why did you decide to make the chart vertical or horizontal?

As there are lots of categories it is better have it as a horizontal bar chart.

Section 1.3 (active)

8) This dataset can hold the number of episodes for TV shows. Add in the number of episodes in your favourite TV shows, then create a bar chart from it. Amend the title and add axis titles of your graph.

tv_show	episodes
Friends	236
MASH	251
Big Bang Theory	279
dinnerladies	16
The West Wing	156
Blackadder	27
Still game	62



Below are some websites that might help you check the number of episodes in TV shows.

<https://www.imdb.com/>

https://en.wikipedia.org/wiki/List_of_television_programs_by_episode_count

2. Histogram

Section 2.1 (recall)

- 1) Histograms should have bars that are touching. What does it tell you if there are gaps between the bars in a histogram?

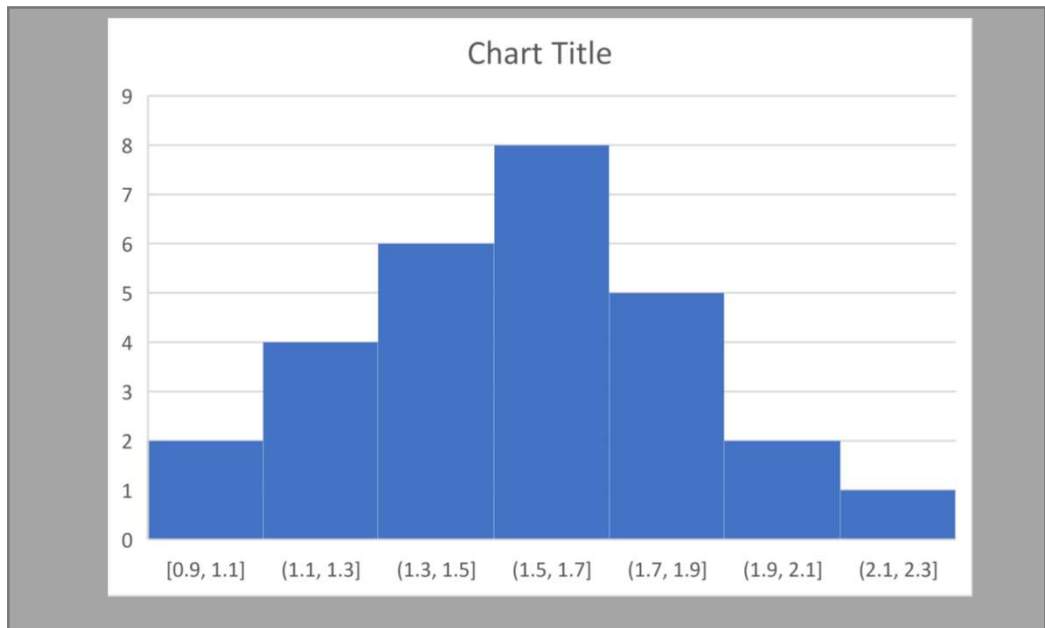
If there are gaps between the bars, then that implies missing data in that range.

Section 2.2 (apply)

- 2) This dataset shows the height of trees in a forest. Select the dataset then click on the histogram button in the Insert ribbon to create a histogram.

Once you have created your graph, amend the graph so the bins have a width of 2.

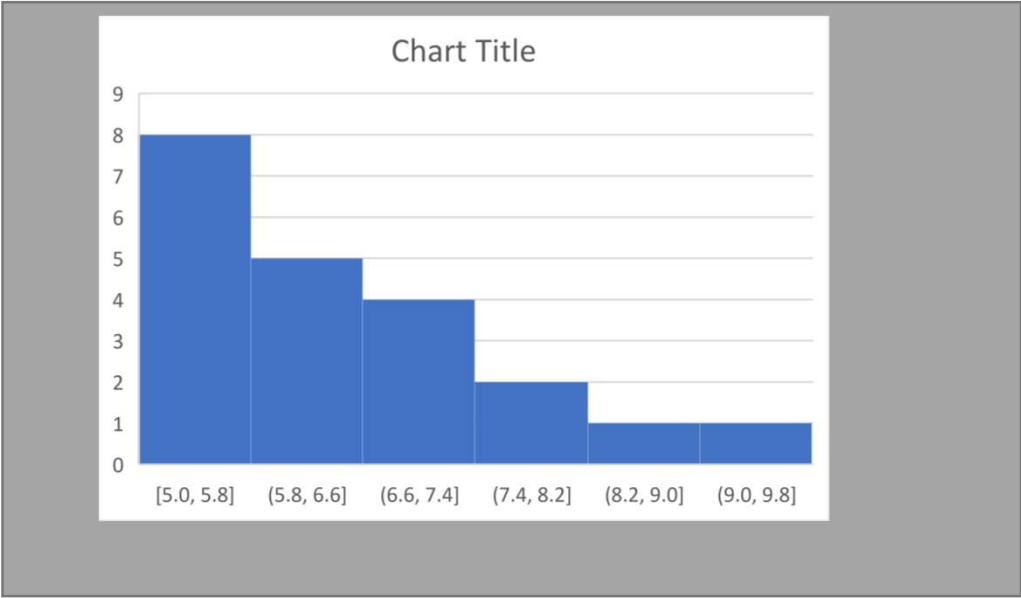
tree_height_m
1.5
2.0
1.8
1.7
1.6
1.4
1.2
1.4
1.3
1.8
1.4
1.4
1.6
1.5
1.6
1.6
1.7
1.8
1.9
2.0
1.7
1.2
1.3
0.9
2.2
1.0
1.9
1.7



2. Histogram

3) This dataset contains the temperatures measured by students during an experiment. Create a histogram of the dataset, then amend the graph so there are 6 bins.

temp
6.0
6.0
7.0
6.0
5.0
5.5
5.6
6.8
7.2
8.1
5.2
5.3
6.0
7.0
8.0
5.2
8.4
9.6
5.3
5.0
6.0



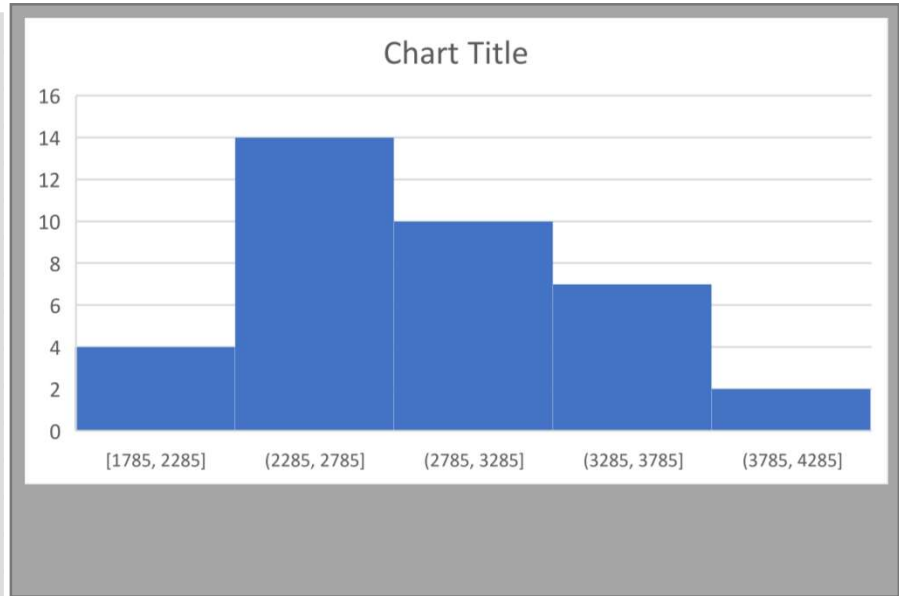
2. Histogram

- 4) This dataset shows the number of lines in the plays written by Shakespeare. Create a histogram from this dataset then amend the width of the bins.

source

<https://www.stagemilk.com/length-of-shakespeare-plays/>

play	num_lines
Hamlet	4030
Coriolanus	3824
Cymbeline	3753
Richard III	3718
Antony and Cleopatra	3573
Othello	3560
King Lear	3499
Troilus and Cressida	3486
Winter's Tale	3362
Henry IV (Part II)	3255
Henry VIII	3239
Henry V	3227
Henry VI (Part II)	3125
Romeo and Juliet	3093
Henry IV (Part I)	3041
Henry VI (Part III)	2932
All's Well That Ends Well	2928
Measure for Measure	2839
Richard II	2803
Love's Labour's Lost	2758
Henry VI (Part I)	2702
As You Like It	2670
Merchant of Venice	2662
King John	2648
Taming of the Shrew	2641
Julius Caesar	2636
Merry Wives of Windsor	2612
Much Ado About Nothing	2581
Titus Andronicus	2558
Timon of Athens	2512
Twelfth Night	2482
Macbeth	2477
Pericles	2464
Tempest	2274
Two Gentlemen of Verona	2233
Midsummer Night's Dream	2165
Comedy of Errors	1785



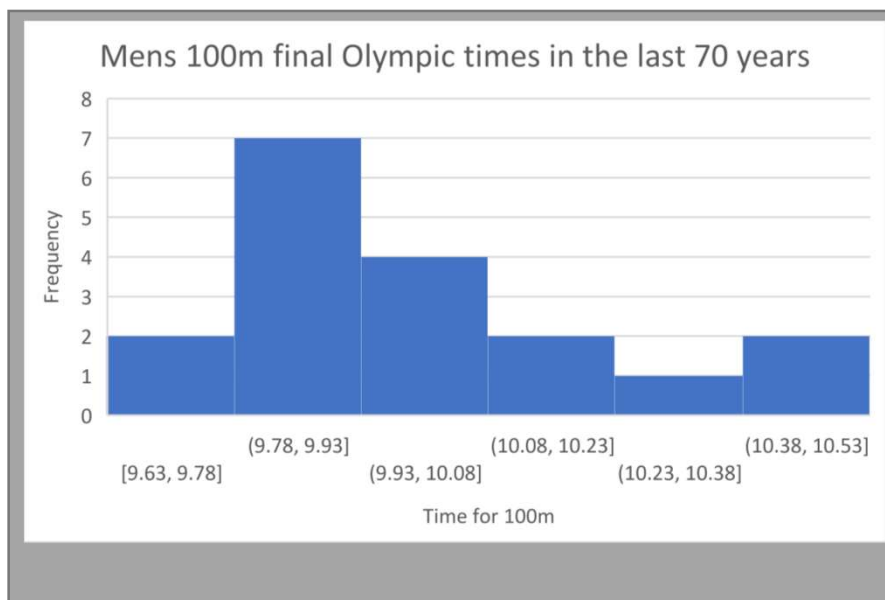
2. Histogram

Section 2.3 (active)

5) Below the dataset has been set up to hold the winning times of regular events. E.g. 100m Olympic final, London marathon

- 1) Decide on an event that you find interesting and fill in the winning times for each year. (there are links to datasets below if you need some ideas)
- 2) Create a histogram using the times you have filled in (only highlight the column with the times to create the graph NOT the year column)
- 3) Amend the size of the bins
- 4) Amend the title of your graph
- 5) Add axis titles

year	mens_100m
2020	9.80
2016	9.81
2012	9.63
2008	9.69
2004	9.85
2000	9.87
1996	9.84
1992	9.96
1988	9.92
1984	9.99
1980	10.25
1976	10.06
1972	10.14
1968	9.85
1964	10.00
1960	10.20
1956	10.50
1952	10.40



100m mens winners
London marathon

<https://www.topendsports.com/events/summer/sports/aths-100m.htm>
<https://www.britannica.com/sports/London-Marathon>

3. Line graphs

Section 3.1 (recall)

- 1) When should you use a line graph? Fill in the gaps in the statement,

Line graphs should be used to show the change of a value as another quantity varies.

Section 3.2 (apply)

- 2) This dataset shows the price of asparagus in the UK over the last 3 years. Highlight the dataset and press on the line graph button in the Insert ribbon to create a line graph.

Source: <https://www.kaggle.com/datasets/datota/fruit-and-vegatable-prices-in-uk-2017-2022>

date	price
02/07/2021	£ 8.66
25/06/2021	£ 7.89
18/06/2021	£ 6.92
11/06/2021	£ 6.87
04/06/2021	£ 7.27
28/05/2021	£ 6.85
21/05/2021	£ 8.10
14/05/2021	£ 8.98
07/05/2021	£ 10.10
30/04/2021	£ 10.15
23/04/2021	£ 10.21
16/04/2021	£ 11.73
09/04/2021	£ 12.20
02/04/2021	£ 14.94
26/03/2021	£ 15.29
19/03/2021	£ 15.05
12/03/2021	£ 16.96
03/07/2020	£ 10.00
26/06/2020	£ 8.83
19/06/2020	£ 9.65
12/06/2020	£ 9.69
05/06/2020	£ 8.23
29/05/2020	£ 5.41
22/05/2020	£ 4.72
15/05/2020	£ 5.21
08/05/2020	£ 5.35
01/05/2020	£ 6.19
24/04/2020	£ 5.98
17/04/2020	£ 7.74
10/04/2020	£ 8.04
03/04/2020	£ 6.97
27/03/2020	£ 15.18
20/03/2020	£ 16.00
05/07/2019	£ 13.00
28/06/2019	£ 3.50
21/06/2019	£ 7.21
14/06/2019	£ 5.44
07/06/2019	£ 4.29

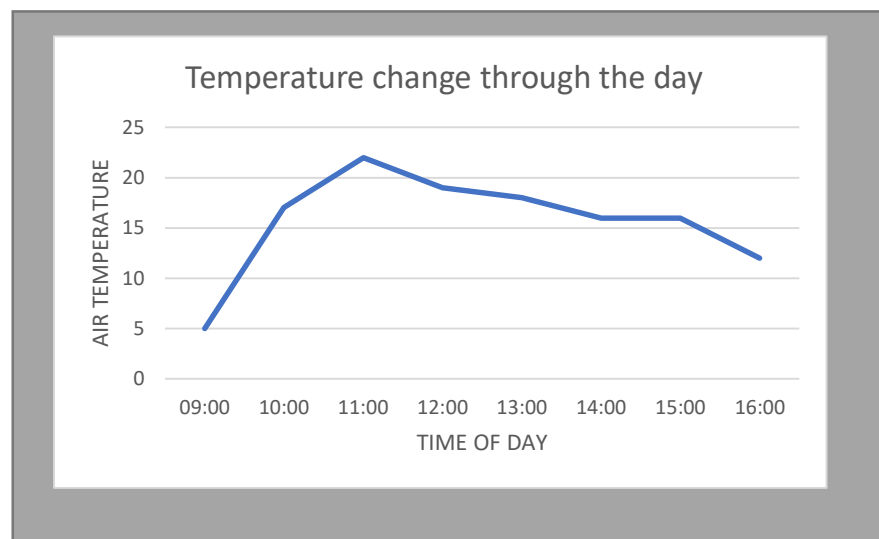


3. Line graphs

31/05/2019	£	4.01
24/05/2019	£	4.16
17/05/2019	£	4.14
10/05/2019	£	5.00
03/05/2019	£	6.86
26/04/2019	£	7.76
19/04/2019	£	9.90
12/04/2019	£	9.66
05/04/2019	£	10.99
29/03/2019	£	12.75
22/03/2019	£	15.00
08/03/2019	£	14.66

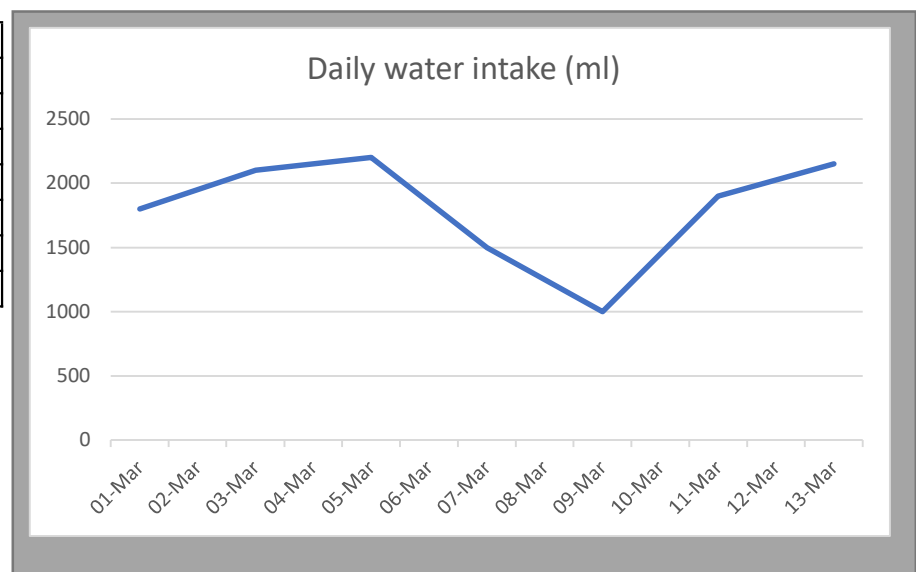
- 3) This dataset shows the air temperature throughout the day. Create a line graph of this data. Then add axis titles and change the words in the graph and axis titles.

time	temperature
09:00	5
10:00	17
11:00	22
12:00	19
13:00	18
14:00	16
15:00	16
16:00	12



- 4) This dataset shows how much water a person has drunk by day. Create a line graph of this dataset, and change the title of the graph.

day	volume_ml
01-Mar	1800
03-Mar	2100
05-Mar	2200
07-Mar	1500
09-Mar	1000
11-Mar	1900
13-Mar	2150



3. Line graphs

Section 3.3 (active)

- 5) Think about a place in the world you would like to visit. Now we are going to plot the temperature forecast for that location. Using the websites below search for the weather forecast and add the forecast temperatures to the dataset below.

Now create a line graph of the dataset, making sure you amend the title of the graph and add axis titles.

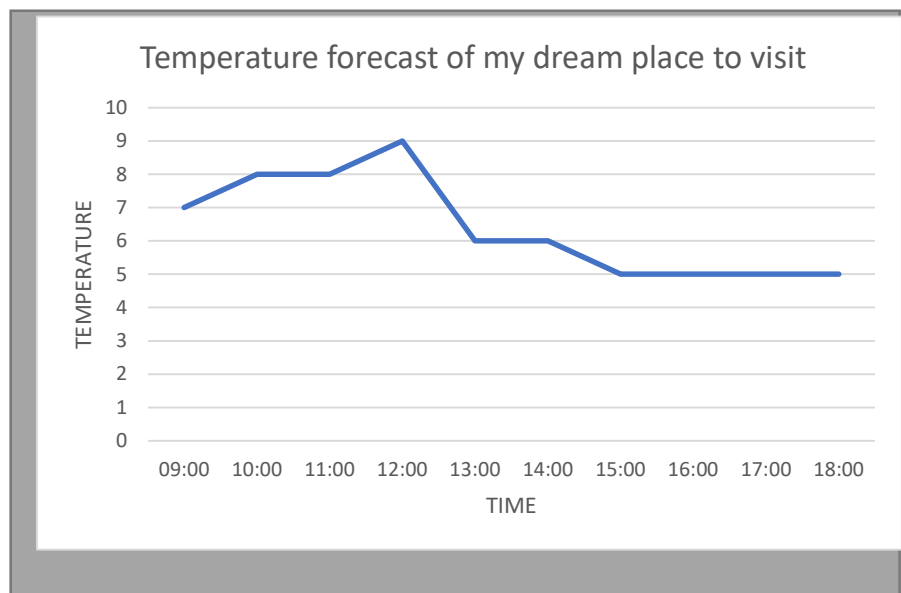
Websites

<https://www.metoffice.gov.uk/>

<https://www.bbc.co.uk/weather>

<https://www.accuweather.com/>

time	temperature
09:00	7
10:00	8
11:00	8
12:00	9
13:00	6
14:00	6
15:00	5
16:00	5
17:00	5
18:00	5



4. Scatterplots

Section 4.1 (recall)

1) When should you use a scatterplot? Fill in the gaps in the statement...

Scatterplots should be used when you want to show the relationship between

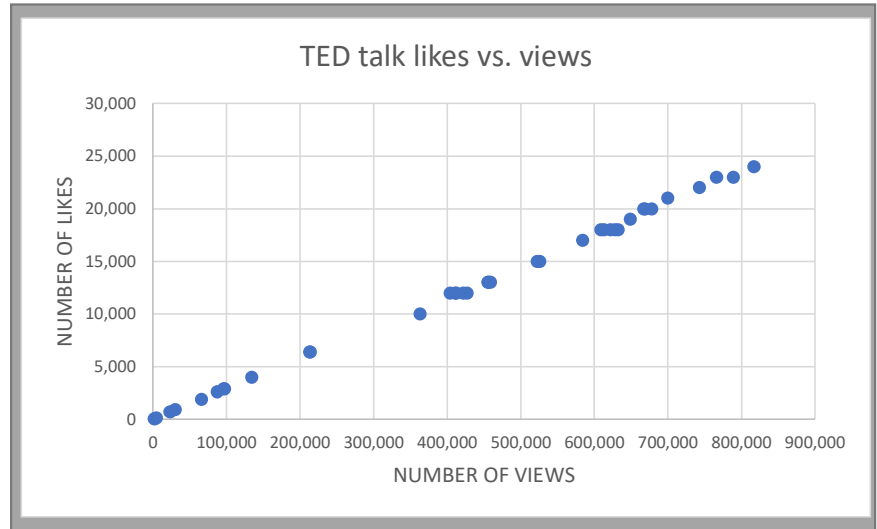
two numeric variables.

Section 4.2 (apply)

2) This dataset contains the number of views and likes of TED talks. Select the dataset and then press the scatterplot button in the Insert ribbon.

Source: <https://www.kaggle.com/datasets/ashishjangra27/ted-talks>

views	likes
404,000	12,000
214,000	6,400
412,000	12,000
427,000	12,000
2,400	72
422,000	12,000
455,000	13,000
66,000	1,900
584,000	17,000
87,000	2,600
213,000	6,400
622,000	18,000
526,000	15,000
23,000	690
628,000	18,000
459,000	13,000
522,000	15,000
96,000	2,900
4,500	135
1,600	49
667,000	20,000
456,000	13,000
632,000	18,000
97,000	2,900
609,000	18,000
363,000	10,000
649,000	19,000
134,000	4,000
613,000	18,000
817,000	24,000
411,000	12,000
700,000	21,000
678,000	20,000
30,000	913
743,000	22,000
669,000	20,000
766,000	23,000
789,000	23,000



4. Scatterplots

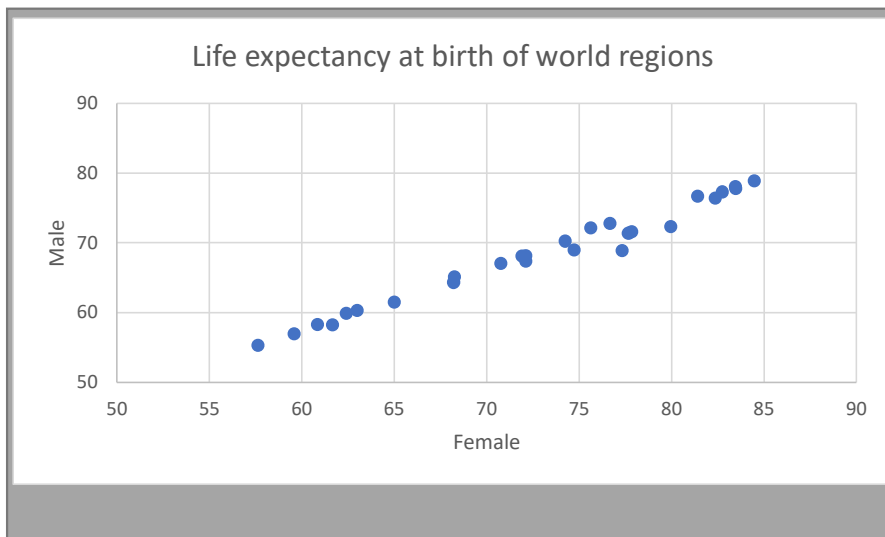
- 3) This dataset shows the life expectancy of men and women in different regions around the world. Create a scatterplot that compares the life expectancies.

Once you have created the graph, add axis titles to the plot.

Source:

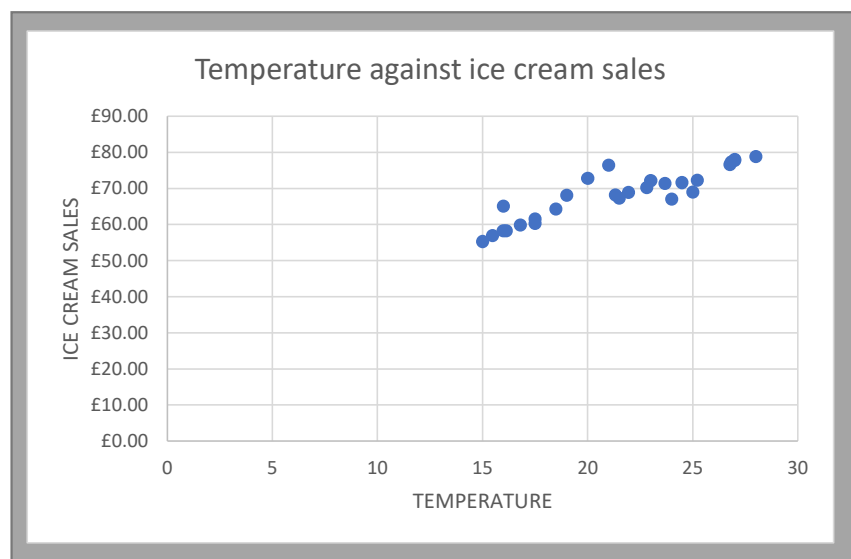
https://think.cs.vt.edu/corgis/csv/global_development/

Female	Male
58	55
60	57
62	58
61	58
62	60
63	60
65	62
68	64
68	65
71	67
72	67
72	68
72	68
77	69
75	69
74	70
78	71
78	72
76	72
80	72
77	73
82	76
81	77
83	77
83	78
83	78
84	79



- 4) This dataset shows the amount of money an ice cream van has made and the temperature on that day. Create a scatterplot to compare these 2 numeric values. Add axis titles to the graph and amend the graph and axis titles.

temperature	ice_cream_sales
28	£78.90
27	£78.06
27	£77.78
27	£77.31
27	£76.68
21	£76.43
20	£72.83
25	£72.33
23	£72.13
24	£71.59
24	£71.42
23	£70.27
25	£69.00
22	£68.92
21	£68.17



4. Scatterplots

19	£68.13
22	£67.37
24	£67.05
16	£65.11
18	£64.32
18	£61.51
18	£60.33
17	£59.91
16	£58.30
16	£58.25
15	£56.96
15	£55.32

Section 4.2 (active)

- 5) Fill in the dataset below with the height and shoe size of people in your class, friends, family or celebrities. Then create a scatterplot to compare the height against shoe shoes.

name	height_cm	shoe_size_uk
Andy Murray	190	11.5
Tom Cruise	170	11
Queen Elizabeth II	163	4
David Beckman	183	11
Michael Jordon	198	12
Kylie Minogue	152	5
Britney Spears	163	7
Madonna	165	6.5
Danny DeVito	147	8.5
Reese Witherspoon	156	4.2
George Clooney	180	9

