

student hub live is the OU's live online interactive platform to support academic community



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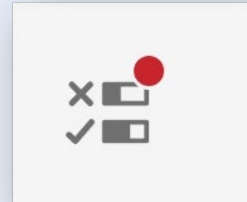
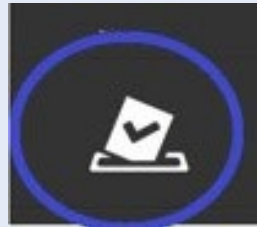
Online workshop basics



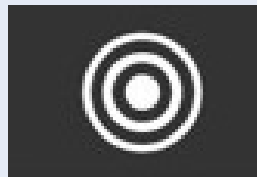
- Polls are anonymous to other participants but the chat box will have your logged in name associated with your comments during the live session.
- All online sessions are recorded and available to view on catch up on a public facing website.
- Slides are available to download during the session(*may not be accessible on some mobile devices*) and from <http://studenthublive.open.ac.uk/>.

Mobile users

If you are on a mobile device remember you need to tap into the polling option



To come back to these slides after completing a poll click on the share pod slides icon



Chat pod icon



Today's workshop

- This is a tutor led session about understanding graphical data.
- We'll give you some ideas about how to use and produce graphs
- There is a lot of interaction so please be ready to answer polls (questions) or add to chat pod during the session
- We can not give module or subject specific advice

Please be aware

- These sessions are large scale
- They are very busy
- There is lots of interaction
- They are not the same as other tutorials
- You can maximise slides on your own screen by clicking the icon (this will hide the chat)



Inclusivity

- We welcome all students at our workshops. Please do be aware that they can be very busy and some students may struggle with the non scripted nature.
- Slides are available to download within the live session and from the event page on the studenthublive website 24 hours ahead of every session to follow along or prepare for what will come up.

Please

- Do NOT share any personal information in the chat pod during the session
- On the recording names will be anonymised to user number
- However if you type anyone's full name or any other personal information in the chat pod it can be seen by everybody and it would also show up on the recording so we would not be able to make the recording available

Understanding Graphical Data



This was our advert...

- Graphs are a great way of sharing your data with an audience. In this session we'll look at the most useful types of graphs and when and how you should use them.
- We'll consider common mistakes, both in plotting and reading graphs. There will also be some tips and tricks on how to create the graphs in Excel.

Recommended resources



- Excel in easy steps

<https://www.amazon.co.uk/Microsoft-Excel-easy-steps-Illustrated/dp/1840789964>

- From University library

(download 1 chapter or read whole book online)

<https://ebookcentral.proquest.com/lib/open/detail.action?docID=30554902&pq-origsite=primo>

- Excel charts and graphs tutorial

<https://www.youtube.com/watch?v=eHtZrlb0oWY>

- Create an XY Scatter Chart in Excel

<https://www.youtube.com/watch?v=wo-erv8hmxk&t=7s>

- Every Major Chart Type and When to Use It

<https://www.youtube.com/watch?v=IHZHujXKQb0>

- 80 ideas for graphs

<https://www.datylon.com/blog/types-of-charts-graphs-examples-data-visualization> (commercial site)

Excel <https://www.youtube.com/@StevenBradburn>



First thoughts poll

- What's the purpose of a graph?

Definitions

- Chart “A chart is a representation of data that transforms the data into visual components.”
- Graph “a diagram showing the relation between variable quantities, typically of two variables, each measured along one of a pair of axes at right angles.”

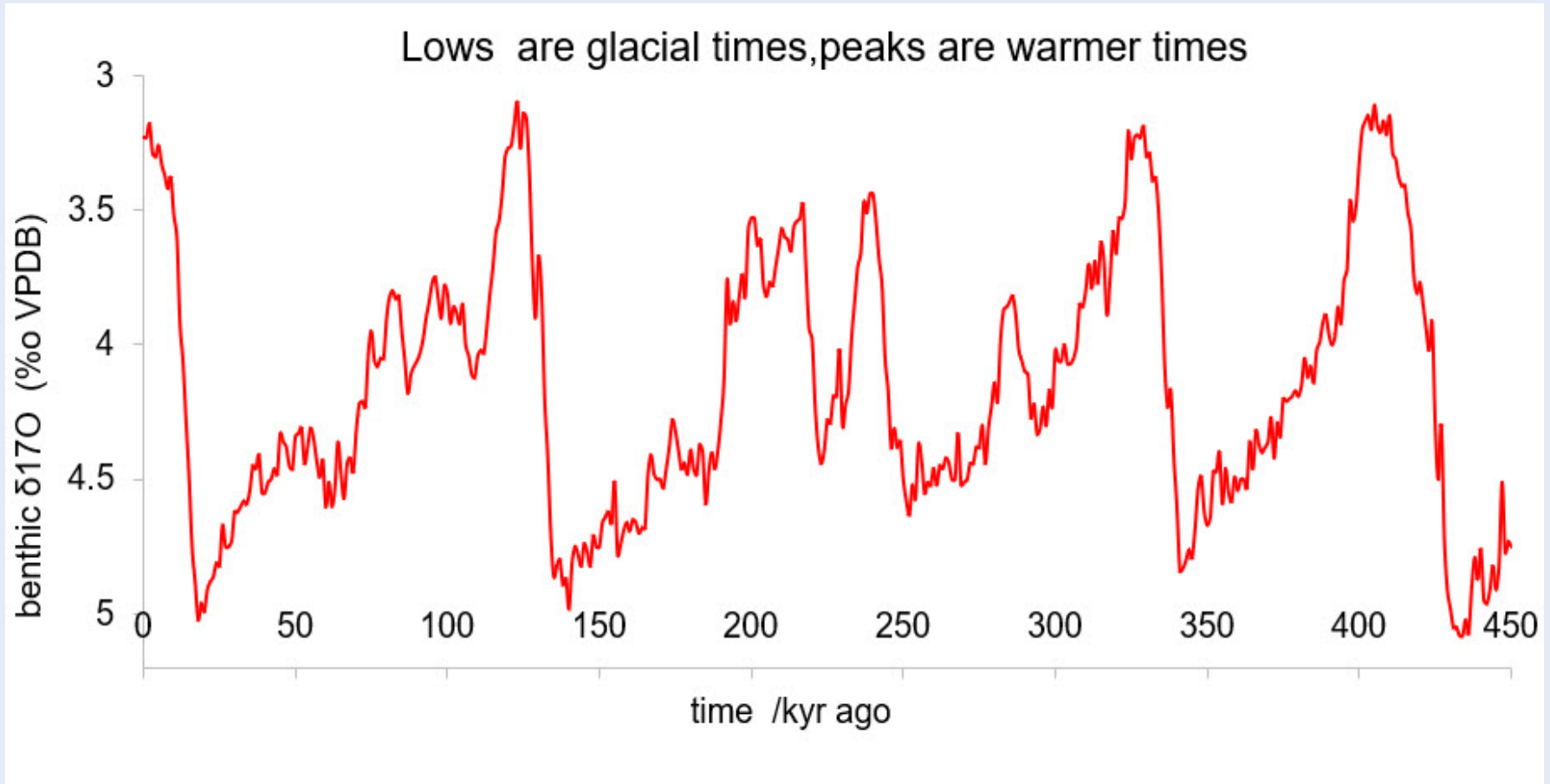
Purpose

- Communicate the relationship between variables
- Use to make measurements
- Used to make predictions
- Easier to understand than text or a table explaining the same information

Bias

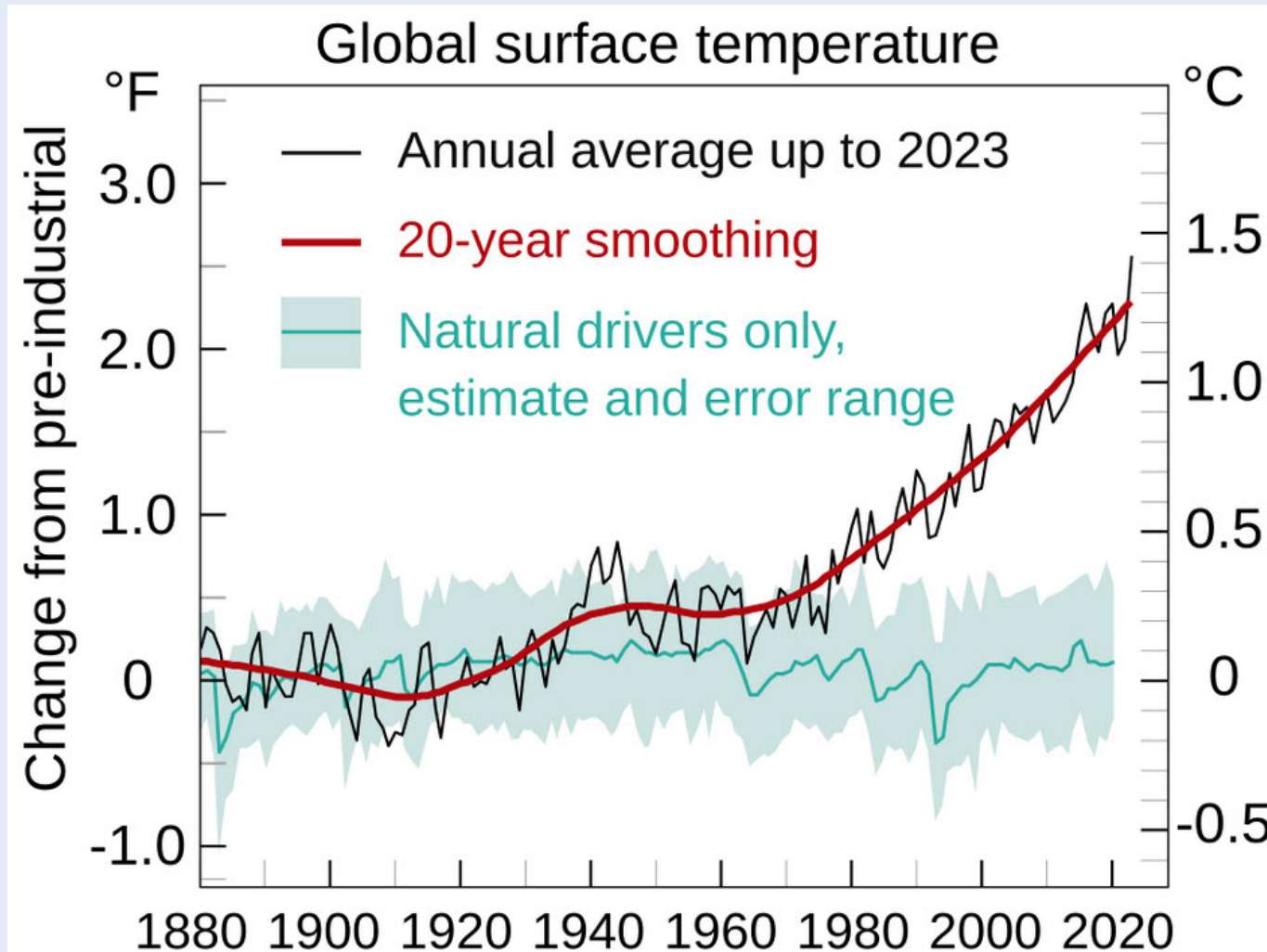
- How could a graph be used to bias people's opinions?

What does this graph say about global warming?



Proxy = variable that has a direct link to something you can't measure directly

But.... What does this graph say about global warming?



Poll on variables

Which variable?

- Constant
- Independent variable
- Dependent variable
- Controlled variables
- Confounding variable
- Extraneous variable

Which variable?

- Variables you're not controlling that could affect the dependent variable
- The ones you decide to keep the same must be described for your audience
- The ones you measure, y-axis
- The ones you adjust the change of, x-axis
- Extra variables that you can't control that could affect both your dependent and independent variables

Which variable answers



- **Controlled**
 - The ones you decide to keep the same must be described for your audience
- **Independent**
 - The ones you adjust the change of, x-axis
- **Dependent**
 - The ones you measure, y-axis
- **Extraneous**
 - Variables you're not controlling that could affect the dependent variable
- **Confounding**
 - Extra variables that you can't control that could affect both your dependent and independent variables

Example

A study of women aged 23-35 was made comparing their height to the distance they could jump horizontally.

- Controlled variable
Age, jumping, horizontally, gender
- Independent variable
Height
- Dependent variable
Jump length



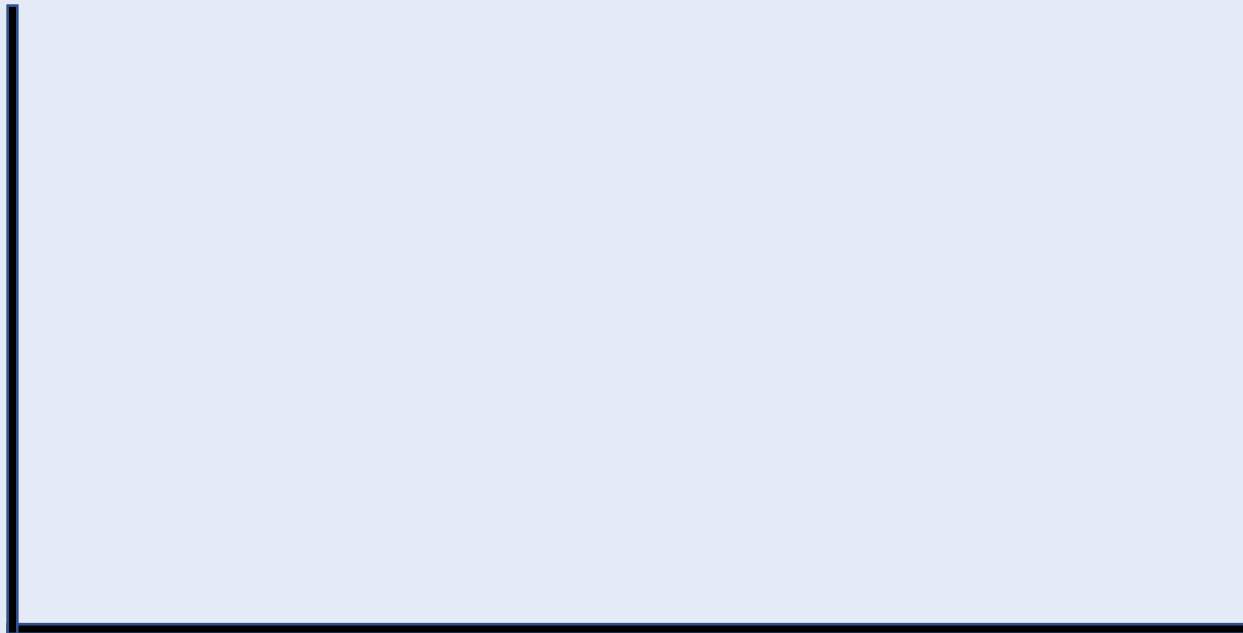
Example

A study of women aged 23-35 was made comparing their height to the distance they could jump horizontally.

- Extraneous variable
**Weight, experience, fitness,
warm up routine**
- Confounding variable
Time of day

Graph example

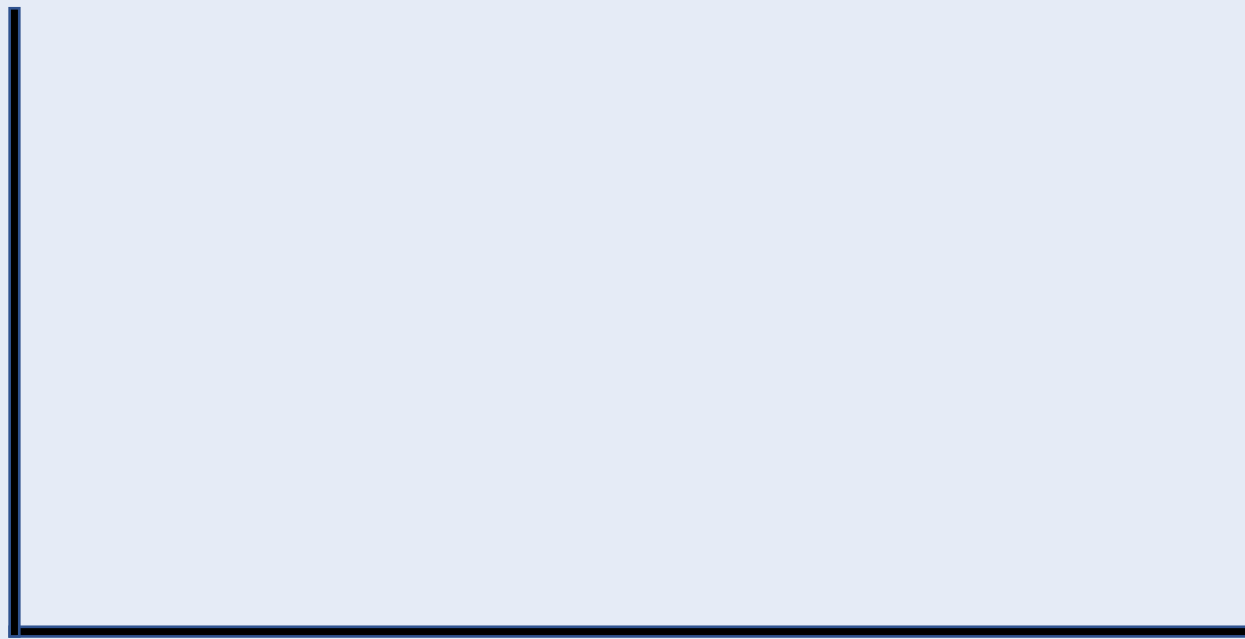
- Their height and their distance jumped can be made into graph.
Which would be the x and y axis?



Graph example

- Their height and their distance jumped can be made into graph.
Which would be the x and y axis?

**y-axis jump length
(dependent)**

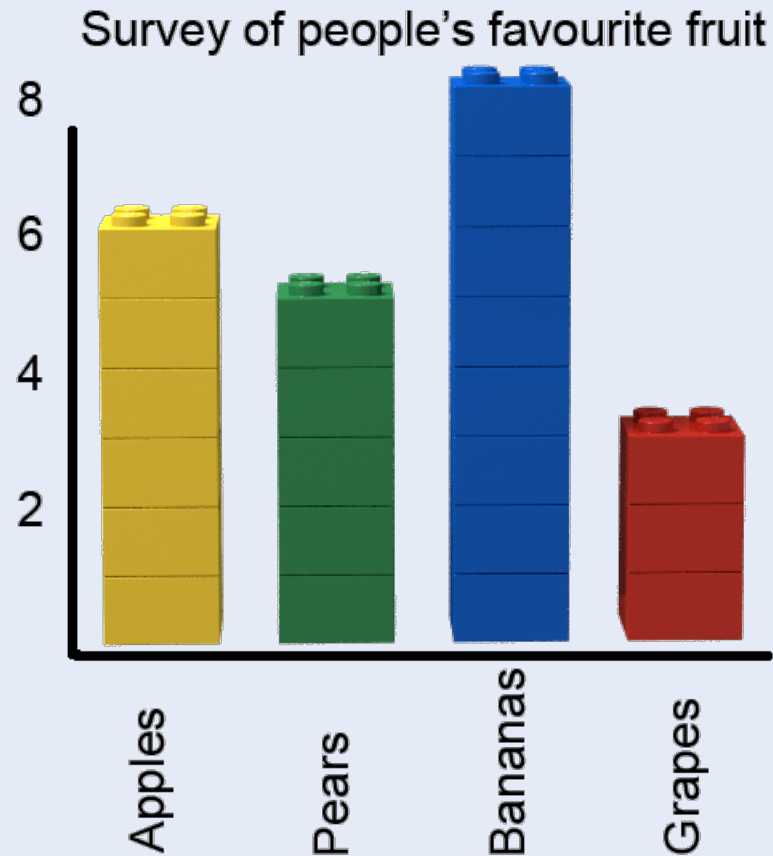


x-axis height (independent)

Word cloud

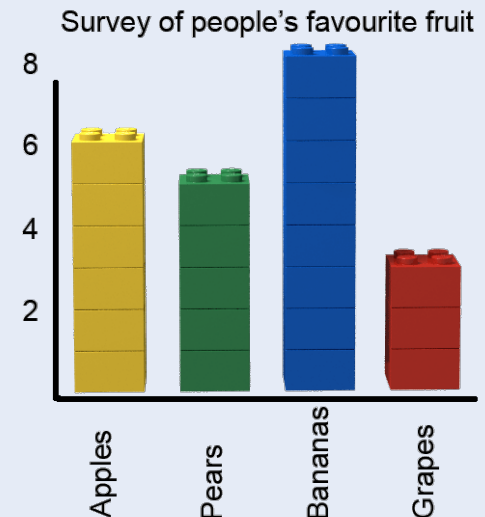
- Using the option to type in where it says enter up to two word there
- **What types of graphs do you use?**
- Note that these need to be just one or two words rather than phrases, if you press the space button your first word will go through

What types of graphs do you use?



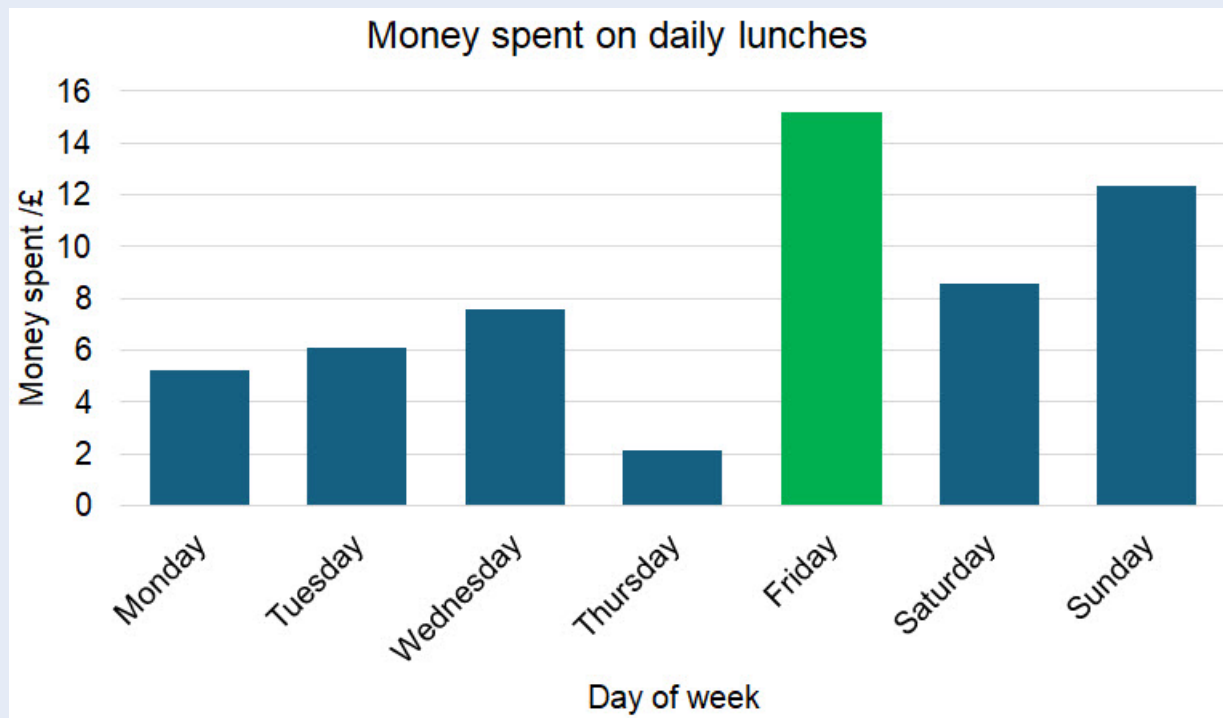
Common types of graphs

- Bar chart vertical bars (column in excel)
- Bar chart horizontal bars
- Histogram
- Pie and sunburst (or doughnut) charts
- Radar
- Line graph (scatter in excel)



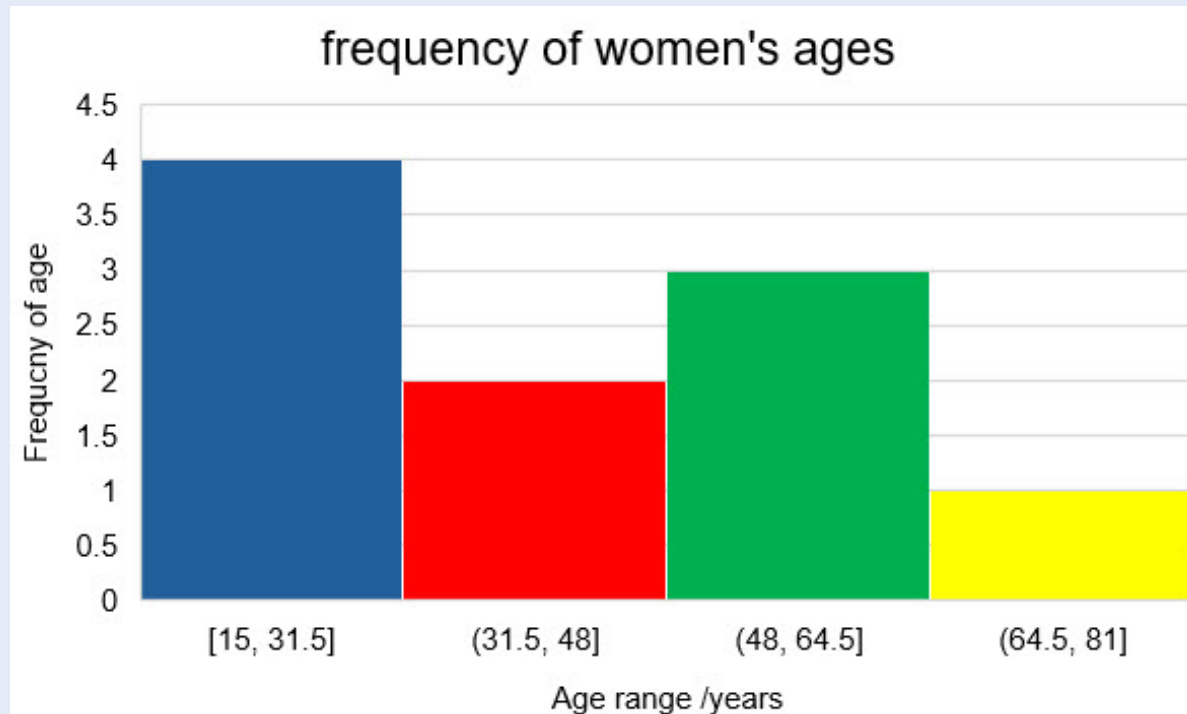
Bar chart

- Used to display discrete (separate) categories of data.
- Vertical usual (column in excel)
- Horizontal if you have large number of data types



Histogram

- Used to display data where it is grouped in ranges like a frequency
- Displayed with them joined together - same graph on excel just make the columns fatter.



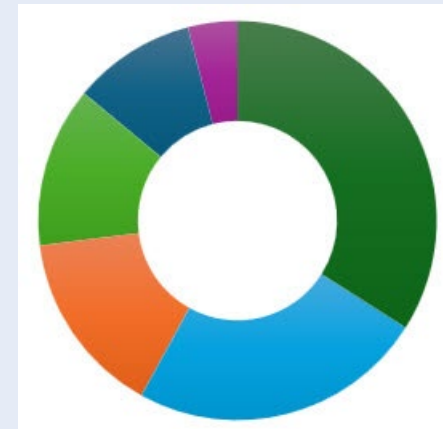
Pie/ sunburst

- Show how the part contribute to the total number. Often percentages. Don't have too many segments.

Percentage of people at meeting

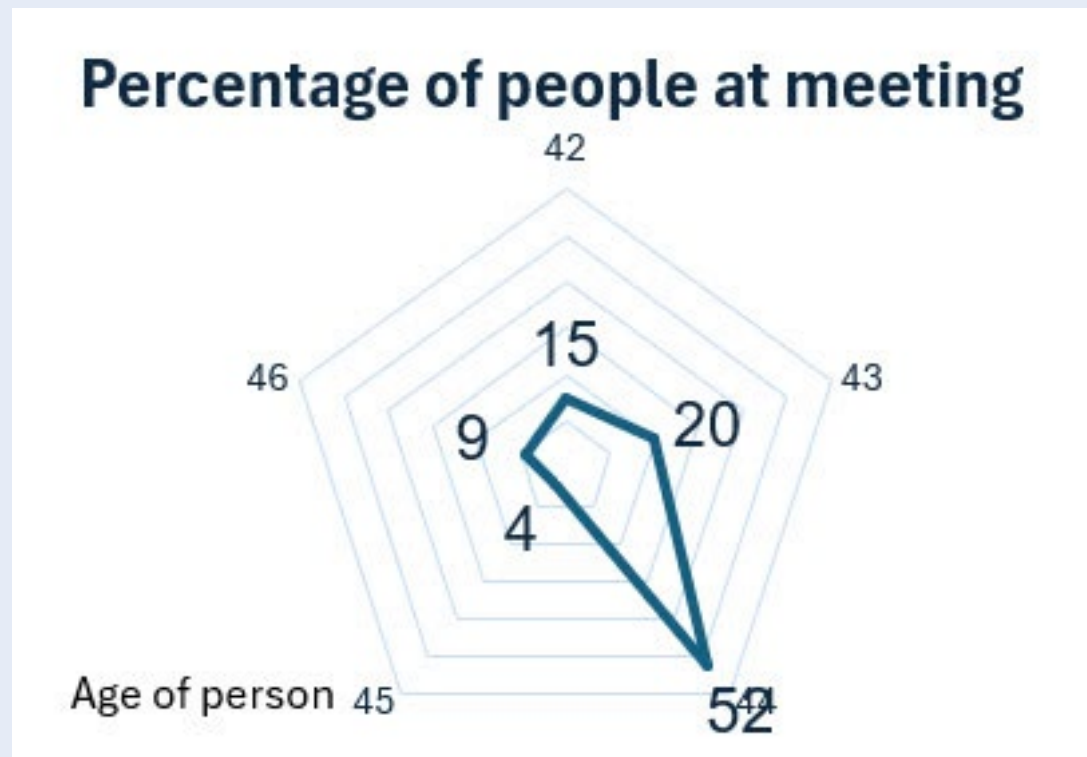


Age of person ■ 41 ■ 42 ■ 43 ■ 44 ■ 45 ■ 46

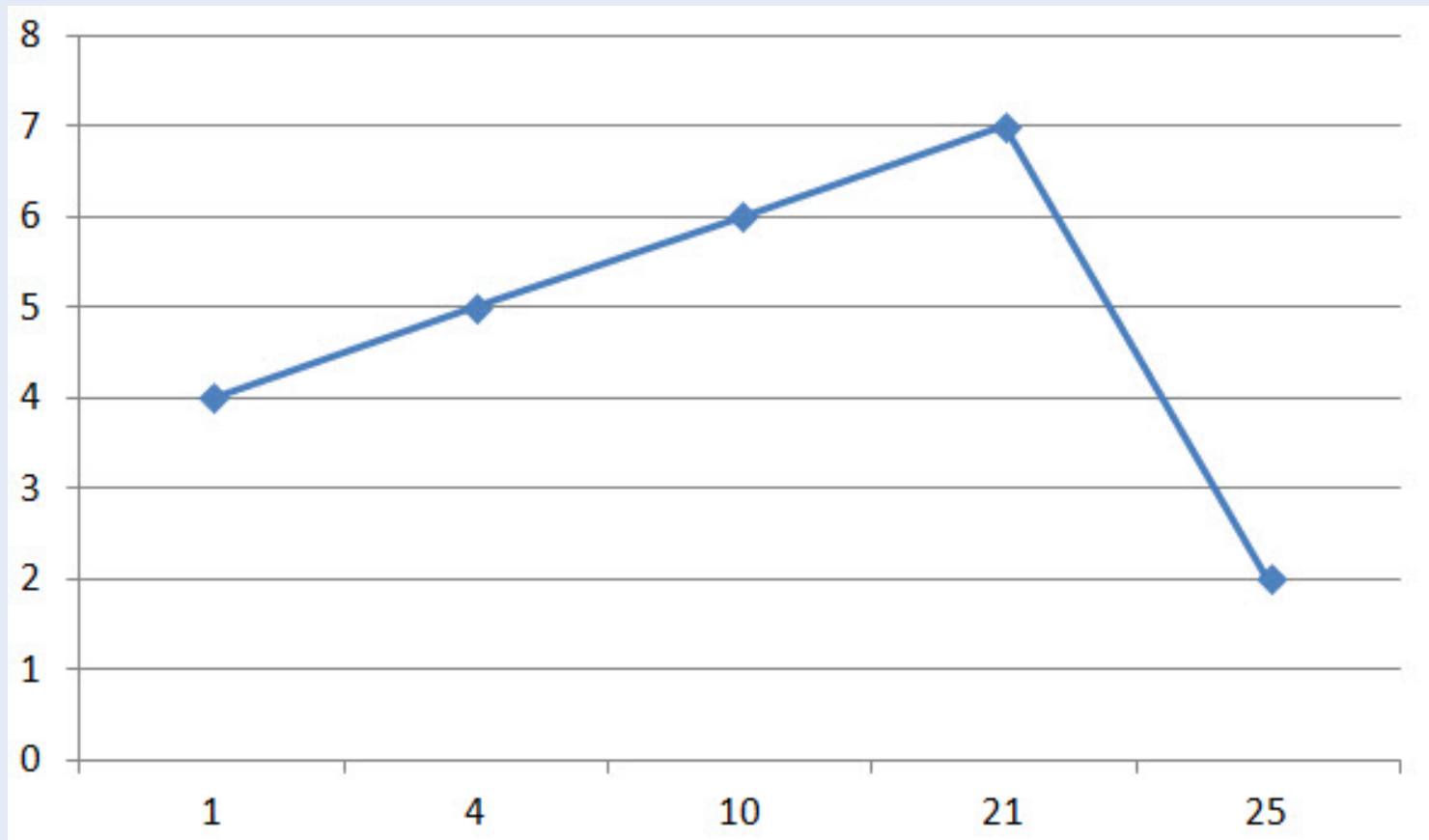


Radar

- To compare multiple variables on one graph.
Can help identify outliers.



Line graph what's wrong?



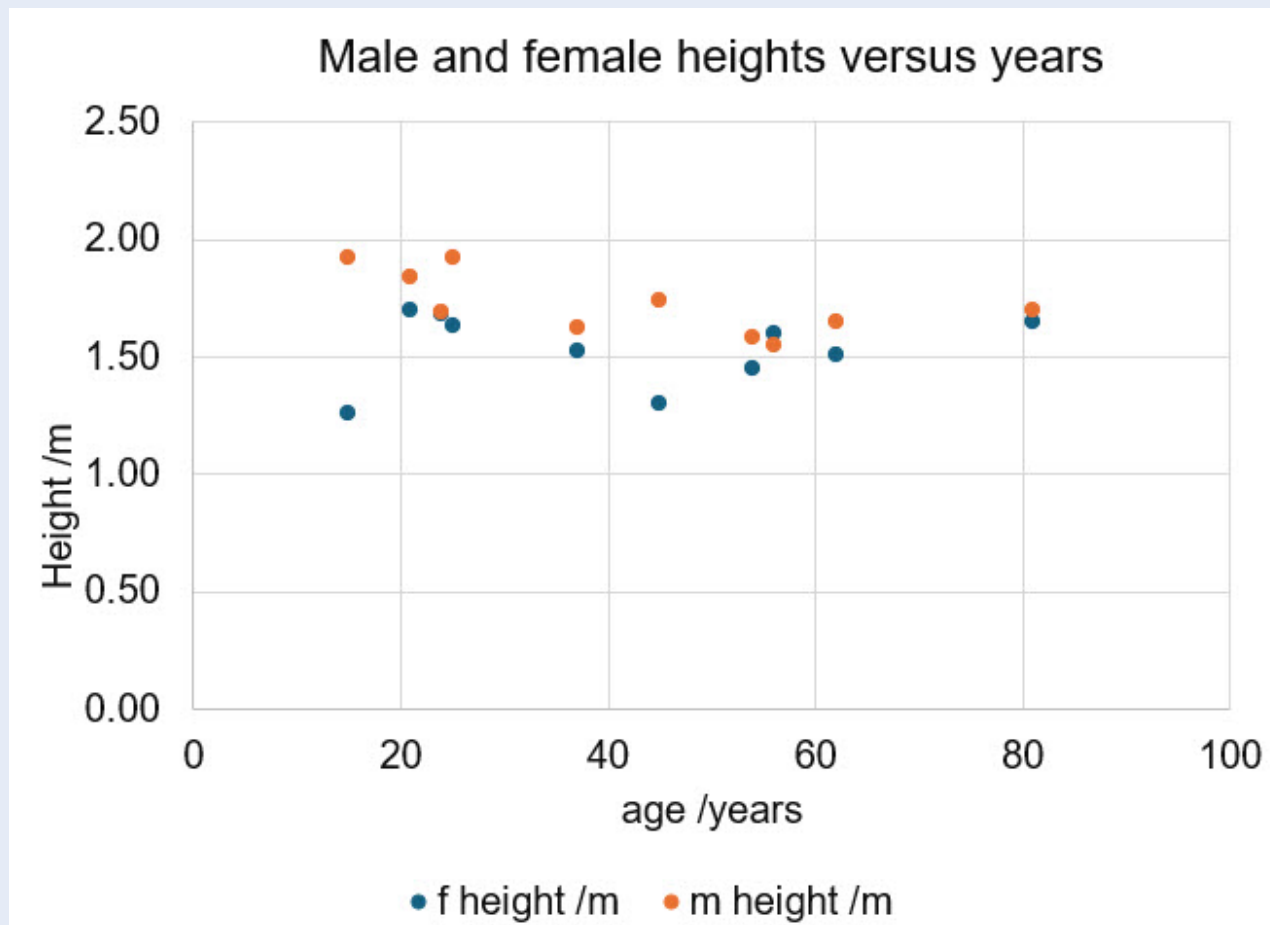
**What do you
think every graph needs?**

All graphs need:

- Title, y versus x
- Key if more than one data set
- Axes labels
- Axes numbers
- Units on axes
- Clear distinction between data sets
- Appropriate spacing on axis
- Text big enough to see

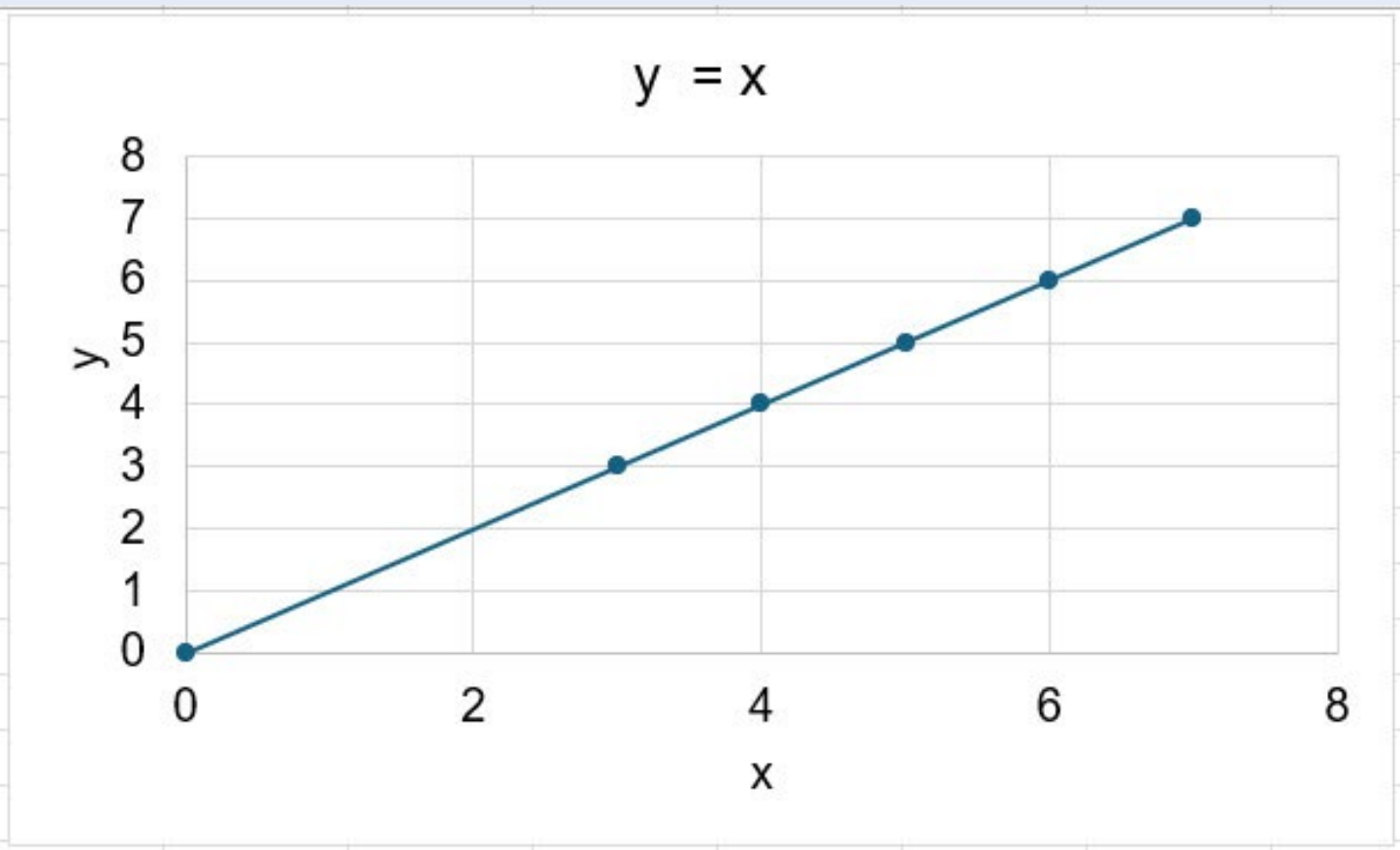
Line graph use scatter

- Correlate two sets of data where looking to see does one depend on the other

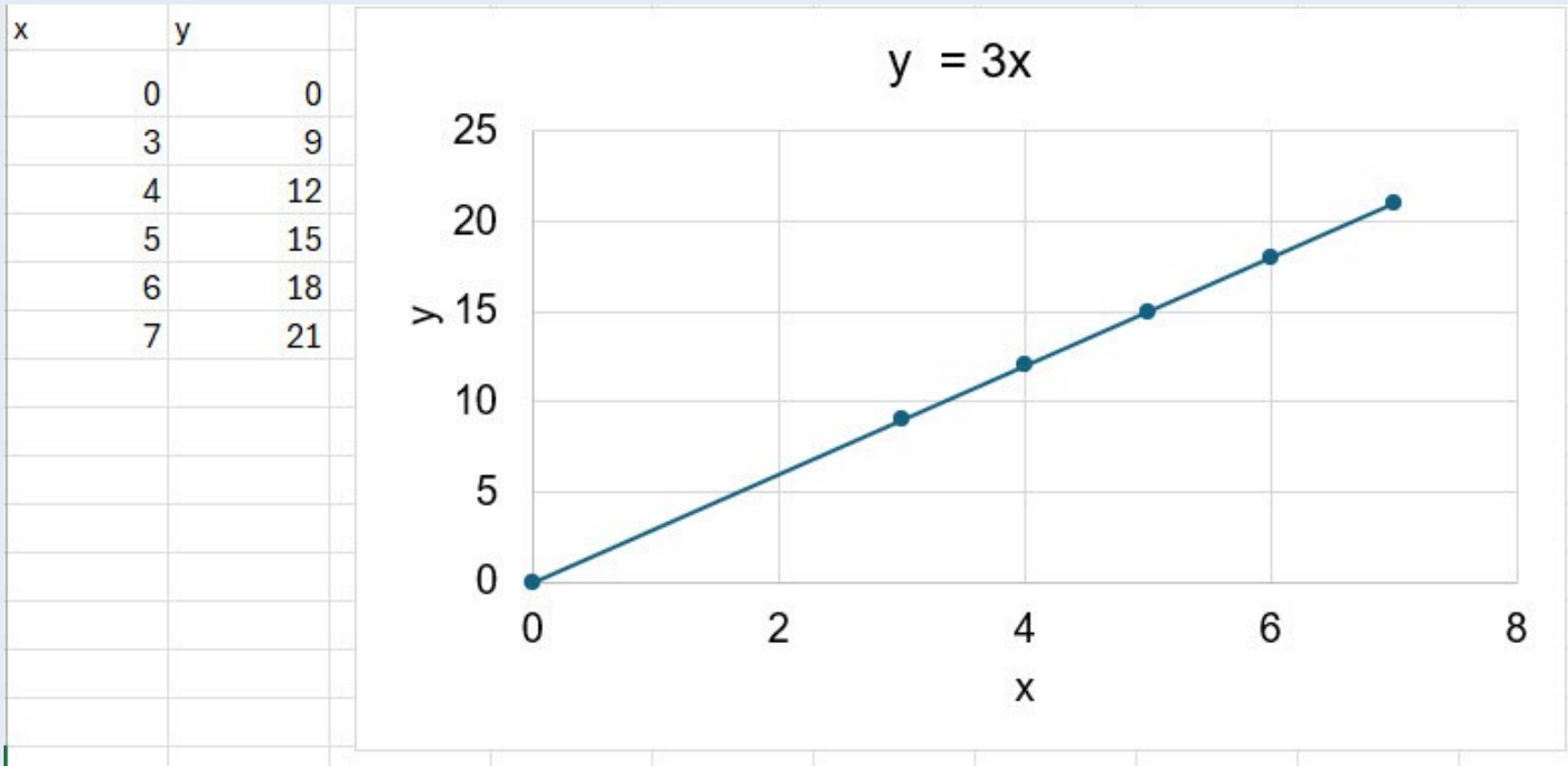


Equation of a straight line

x	y
0	0
3	3
4	4
5	5
6	6
7	7

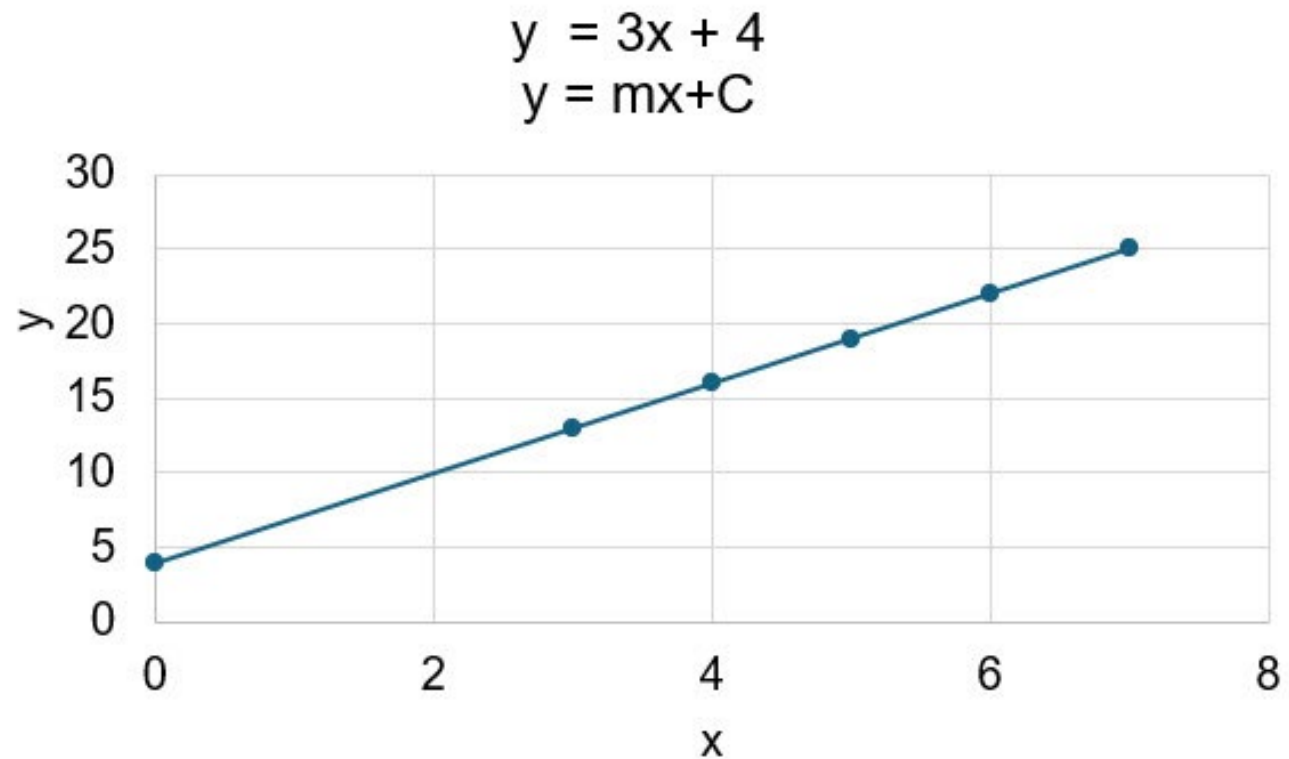


Equation of a straight line



Equation of a straight line

x	y
0	4
3	13
4	16
5	19
6	22
7	25



Add a trend line

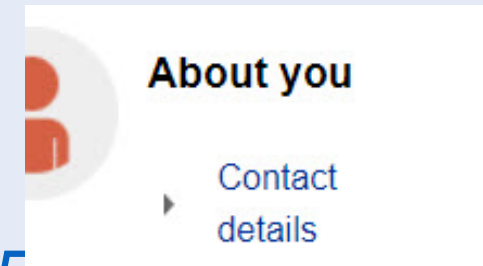


Office 365



Profile

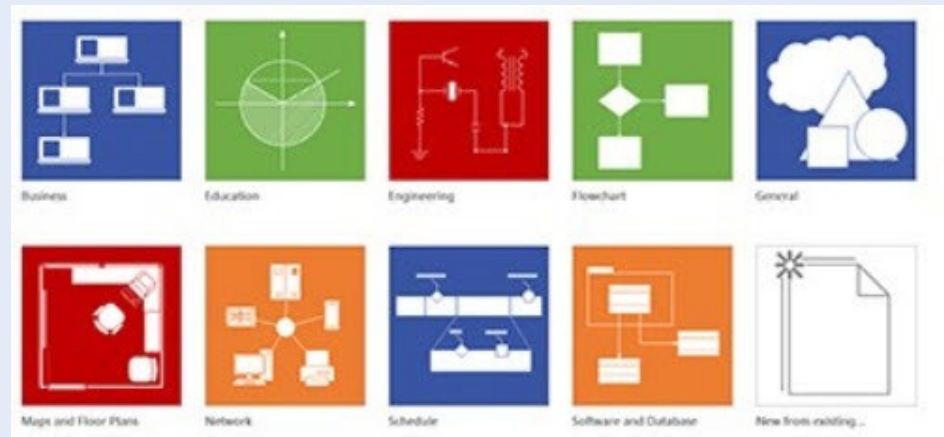
- Find your OU email
- Not the one you have signed up with
- Top tabs profile then contact
- Will end @ou.ac.uk
- The on side navigation click Microsoft 365



- <https://help.open.ac.uk/microsoft-365/accessing-your-ou-microsoft-365-account>

- Excel
- Visio

<https://www.youtube.com/watch?v=SN32SI7PH8Q>



Your thoughts

- There will be 2 specific questions in chat pods for you to explore some of the elements we have discussed further.
- *MISTAKES I'LL AVOID WITH GRAPHS....*
- *THINGS I'LL WILL TRY WITH GRAPHS....*
- You are welcome to add your thoughts and we will then pick up some of the themes and talk through them.
- Chat does have names on but the recording will be anonymised so you will appear as 'user number'

Take home message

- Have a clear purpose for your graph
- Choose the right graph to match your purpose
- Proof read all the text
- Check you axis – dependent/ independent, linear, big enough to read
- Check does the data make sense
- Have you put any bias in?

Feedback please

Please use the following link to provide feedback to help the studenthublive team to continue to improve what we do

<https://forms.office.com/e/DH0ffhme4D>

Selected upcoming events



- 13 Feb 11 am Tackling procrastination
- 18 Feb 7 pm Fundamental maths skills
- 20 Feb 11 am Support and well being for student carers
- 25 Feb 7 pm Logical problem solving
- 27 Feb 7 pm Introduction to essay planning
- 04 Mar 7 pm Developing your essay planning
- 06 Mar 11 am Really understanding questions
- 11 Mar 11 am Critical thinking (beginners)
- 17 Mar 11am Critical thinking (intermediate)
- 19 Mar 11am Creative problem solving

For more information on all past and upcoming events, go to <http://studenthublive.open.ac.uk/>